COMMODORE

152-PAGE ISSUE!

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NOVEMBER 1986

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commodore 64 PERSONAL COMPUTER

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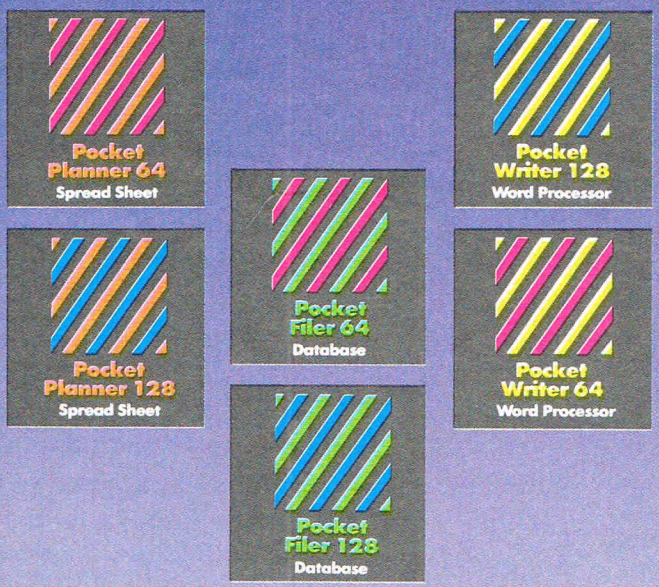

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30 Wertheim Court, Unit 2
Richmond Hill, Ontario
Canada L4B 1B7
Telephone (416) 731-8775

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Pocket Writer 128 or 64 Word Processing

What you see is what you get

With Pocket Writer 128 or 64, there's no more guessing what text will look like when you print it. What you see is what you get . . . on screen and in print. There are no fancy codes to memorize, no broken words at the end of a line.

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- on-screen **boldface**, underlines and *italics*
- no complicated format commands to clutter text
- on-screen help at all levels
- spelling-checker lets you add words to your dictionary
- 40 or 80 columns on screen
- files compatible with PaperClip™ or other word processors

Pocket Planner 128 or 64 Computerized Spreadsheet

Make fast work of budgeting and forecasting

Pocket Planner 128 or 64 software lets you make fast work of all your bookkeeping chores. Cheque books, household accounts, business forecasting and bookkeeping are just some of the jobs that Pocket Planner 128 or 64 packages make easier. You can even create four different kinds of graphs.

Accurate, sophisticated and easy to use. Pocket Planner 128 or 64 offers standard spreadsheet features plus . . .

- accuracy up to 16 digits, about twice as many as most spreadsheets for the Commodore 128 or 64
- sideways printing available on dot matrix printers, for oversized spreadsheets that won't fit on standard paper
- **on-screen help** at all levels
- compatible with VisiCalc™ files
- 80 column on-screen option for the Commodore 64 in addition to the standard 40 columns
- graphics include **bar**, **stacked bar**, **line** and **pie** graphs that can also be used in word processing files
- **smart evaluation** of formulae for accurate complex matrices

Pocket Filer 128 or 64 Database Manager

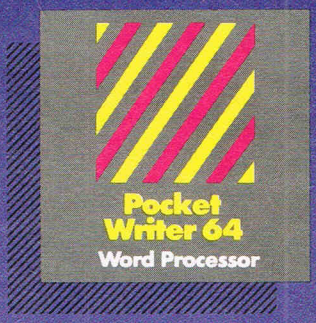
Database management made easy

With Pocket Filer 128 or 64, you can organize mailing lists, addresses, inventories, telephone numbers, recipes and other information in an easily accessible form. Use it with Pocket Writer 128 or 64 (or other word processors) to construct individually customized form letters.

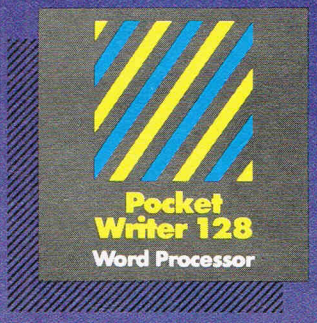
Pocket Filer 128 or 64 packages are fast, sophisticated and truly easy to use. In addition to standard database features they offer . . .

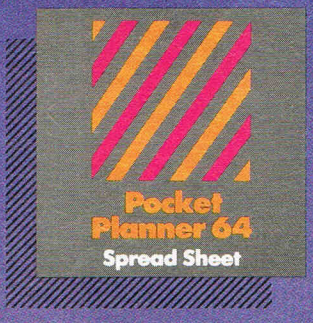
- use up to 255 fields per record (2,000 characters per record)
- sorts by up to 9 criteria, can save 9 different sorts
- print **labels** in multiple columns
- flexible report formatting including **headers** and **footers**
- optional password protection including **limited access viewing** or **updating**
- on-screen help at all levels
- print from any record to any record
- arithmetic and trigonometric functions in **reports** using up to 16 digit accuracy

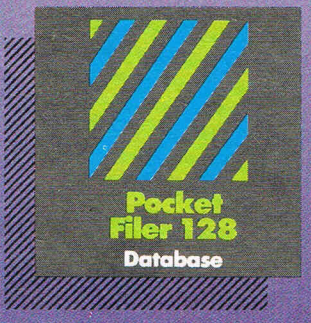
Solutions!

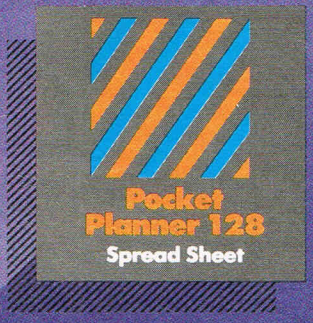


PW 128/64 Dictionary also available









Best-selling software for Your Commodore 128 or 64

You want the very best software you can find for your Commodore 128 or 64, right?

You want integrated software — word processing, database and spreadsheet applications — at a sensible price. But, you also want top-of-the-line features. Well, our Pocket 128/64 software goes one better.

With Pocket 128 or 64, you'll find all the features you can imagine . . . and then some. And Pocket 128/64 is so easy to use, you won't even need the reference guide. On-screen and in memory instructions will have you up and running in less than 30 minutes, even if you've never used a computer before.

Pocket Writer 128 or 64, Pocket Planner 128 or 64 and Pocket Filer 128 or 64 . . . **Solutions** at sensible prices from Digital Solutions Inc.

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Pocket Writer 128 and 64 are available in French — full AZERTY keyboard support.

152 pages of probably the best Commodore magazine in the Universe!

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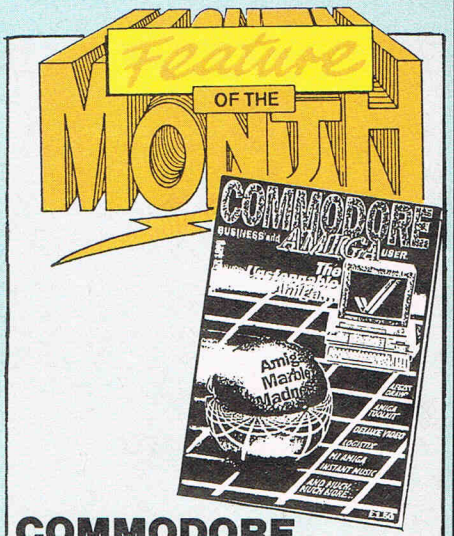
November 1986



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PREVIEW TIME

We give you the bizz on the latest mega-wizz games
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NEXT MONTH

Even with 152 pages we didn't have room for everything this month! Sorry folks . . . So it's Desktop Publishing held over! There'll be +4 Memory, Modems, Music, Graphics, The Consultant *MASSIVE* Games, Stunning new Adventure & Strategic features, Oxford Pascal, and some sensational Hints & Tips! Reserve YOUR very own copy now!

CCI View

Dear Reader,

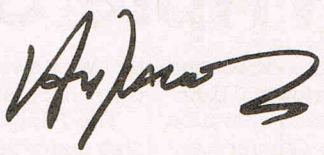
This month we are publishing the largest ever CCI. It includes a a substantial section which is devoted to Commodore Business and AMIGA User. This is now being sold as a separate publication but we thought that it would be of interest to all Commodore owners.

CCI's larger size reflects the growing optimism of the computer industry (See the PCW Feature) and also the recovery that Commodore is making from its serious financial problems of the last 18 months. Commodore specific software is now the taking largest part of the UK and of other countries' software markets. In the UK, the 64 and the C16 between them now sell about 45% of all games.

It is something of a relief that Commodore has returned to profitability. It has a better future than many thought would be the case just a short time ago. The new 64C is already proving to be a success. As you can see from AMIGA User, there is an encouraging growth in the amount of products for the AMIGA to back it up as the most exciting machine on the market. The International Conference held by Commodore (reported in this issue) confirms the returning confidence.

We hope you like the solider CCI and find the new — I hesitate to use the term "spectrum" of colours across the magazine name agreeable. A change now and again refreshes everything.

We are also introducing other new features like Adventure and Simulation Sections. Increasing size will bring more spa e for programs too. If you would like to see other aspects covered in forthcoming CCIs, I should be happy to hear from you what you would like included.



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Tarzan — Lord of the Martech

Tarzan — Lord of the Jungle, is a new arcade combat adventure from Martech which will be released in November. It is the official licensed version of the game, based on the hero created by Edgar Rice Burroughs.

Set in the sprawling jungles of Africa, the game concentrates on Tarzan's quest for Jane, his mate, who is kidnapped by hostile natives. They have taken her to their village hidden in the depths of the dark jungle. The jungle is enormous and very dangerous, it is very easy to get hopelessly lost. Tarzan, in his relentless search for Jane, will encounter many hazards in the jungle which must be avoided or overcome.

Some of the many different animals are Tarzan's friends — some attack on sight! The natives, equally hostile will do all they can to kill Tarzan. He must fight them in fierce hand-to-hand combat. Also hidden in the jungle are mysterious temples and caves. Tarzan will need to explore these also — at his peril!!

Tarzan will not rest until he finds and rescues Jane. He will fight to death with all who stand in his way. If you see him coming better step aside. A lot of men didn't and a lot of men died. It will be £8.95 in November.

Young Masters

Code Masters is a new budget software house. It is made up of the individuals who were directly involved in sourcing most of Mastertronic's software between the Company's formation in April 1984 and the end of 1985. It aims to be the No. 1 software house in the world.

Code Masters consists of 3 Darlings; 18 year old Richard Darling, his 20 year old brother David, and their father Jim. Together they make a formidable team as Jim was one-time Managing Director of A. I. Products, the company then responsible for sourcing all of Mastertronic's software, while Richard and David are award winning programmers whose games have sold in excess of a million copies. Their prodigious range includes The Last V8, Master of Magic and the highly successful Games Creator for Mirrorsoft.

All of Code Masters' games will be full priced quality but will sell for £1.99 and their first 12 products will be launched at the end of September. The releases will include Red Max, an atmospheric arcade adventure in which the hero rides a motorbike in a sleeping city, and BMX Simulator, the sequel to the top selling BMX Races.

PC 49?

These days you do not need a policeman to protect your property — computerwise. PC's can protect themselves. In California, USA, Anchor Pad Inc. is offering a lockable cage that bolts your PC to the desk top.

It certainly has confidence that your PC will not 'take a walk'. It is offering a 'revolutionary no theft pledge'. It guarantees to replace a machine protected by Anchor Pad that any nefarious character encourages to 'escape' from the cage.

The £30 Releases

A suite of accounting software called RELACS is being released at £30 per module for single-user and £90 per module for multi-user versions. The suite includes customer/supplier/company accounts, stock, sales and purchase order processing, foreign currency, sales and purchase analysis, diary/message and telecommunications facilities.

RELACS is fully integrated and easy to use, with detailed help screens and full colour capability. It links into other software, such as spreadsheets and word processing packages, and offers all the features commonly found on more expensive mini computer software. RELACS has a long track record, having been originally written and implemented on Texas and NCR mini computers.

The software is written in RM Cobol and hence can be used on a vast range of computer systems under MS.DOS, Concurrent. DOS and UNIX. It is possible to move RELACS between operating systems, so users wishing to upgrade can do so without recompilation of programs: information can be transferred between computer systems by floppy disc — without re-entering data.

Included in the package price are a 90-day free Helpline, and a 30-day free approval period. A sample accounts package including customer accounts, company accounts, invoicing, stock, and RM Cobol runtime is available at £90 for single-user and £270 for multi-user.

Triple S

Leading computer dealer and distributor Worldwide Computers, a UK wide operation with offices in Greater London, Brighton and Glasgow has launched a System Swap Service, the first of its kind. 'Triple S' guarantees that in the event of breakdown a complete computer system, including printer and peripherals, will be replaced by exact or higher performance equipment while the customer's faulty system is repaired by Worldwide Computers' own engineers.

The Triple S service, which also guarantees replacement system delivery within 6 working hours in the London area and 24 hours anywhere on the UK mainland, costs £250 for any computer system up to a value of £5000 including printer and peripherals, and can also be purchased to cover equipment not originally supplied by Worldwide Computers.

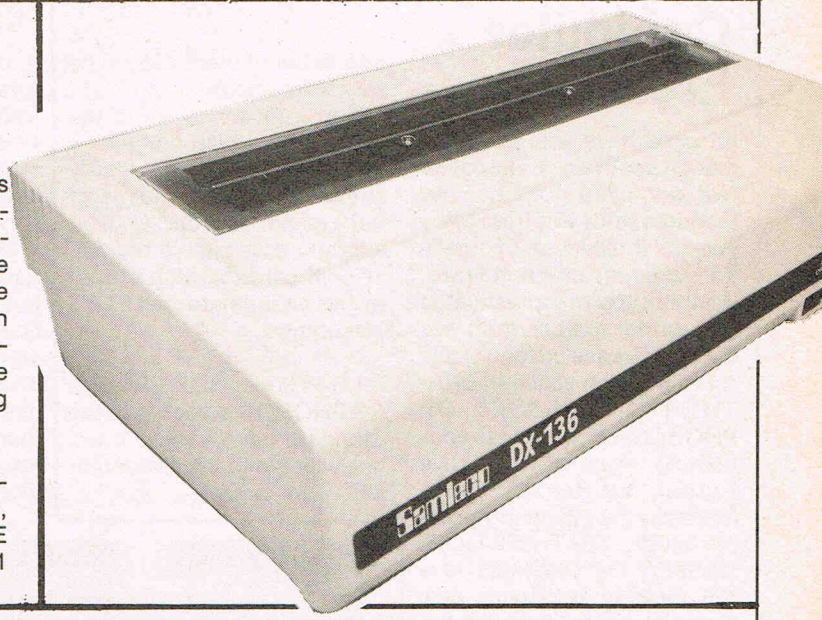
Electric Dreams for USA

Electric Dreams, already well known in Europe, has been launched by Activision in the USA. It is planned to take to the US successful entertainment programs from around the world. The lable is the first of it's kind in the USA. The first three imported products scheduled for release are Rocky Horror Show, Spindizzy and Zoid. All three (from the UK) have been massive successes in Europe. They will cost $29.95 in the USA.

James Levy, President and Chief Executive of Activision commented that Activision is the strongest software company in internatinal markets, so it was natural for us to bring some of the great software we were seeing to US audiences. The group is now searching for the best offerings from Europe as well as Japan, Australia, Canada and South America.

...news...news...news...news

Samleco announce another 132 column Matrix Printer



Samleco have brought out a low cost dot matrix printer, the **DX-136.**

The **DX-136** is a 120 cps, 132 column, 9 needle printer, designed to meet the same robust operating standards as the other printers in the Samleco range and sharing 80% commonality of parts.

It comes with a heavy duty push-pull tractor as standard, with an alternative of friction feed only and will provide draft, correspondence and near letter quality print as standard. A full range of languages is built into the equipment, which also uses the same unique interchangeable interface cartridges used on the other printers; these enable the device to interface with any computer, including the IBM PC.

Contact:
Samleco 9, Fairacres, Industrial Est. Dedworth Road, Windsor Berkshire, SL4 4LE
Tel: 0753 854717 Telex 838791

WHAT A WAY TO TREAT YOUR DAD!! BRIAN JACKS UCHI-MATAS HIS POOR OLD PA!

First UK-USA Micro Link

A British company has achieved a world first by providing a link to allow computer users on both sides of the Atlantic to chat to one another using their micros.

MicroLink, the UK's fastest growing electronic mail service, is able to offer this facility via satellite to New York.

And the cost will be approximately half that of a conventional transatlantic telephone call.

The breakthrough has come about as a result of a deal struck between MicroLink and Mnematics, a giant American database.

With the help of its US partner, MicroLink has set up a complex electronic gateway which will enable the exchange of messages between micros in the US and the UK.

The new service was officially opened when Derek Meakin, head of MicroLink, sent the first message to his opposite number at Mnematics, Greg Squires.

Correction

Cheetah's 125 joystick was incorrectly labelled in last month's add-on guide as the Mach 1. The Mach 1 has 4 fire buttons, autofire and retails at £14.95.

COMPUTER-STYLE RADIO

1990 may see the transformation of the humble trannie. The new generation of "intelligent" radio will enable the listener to dispense with tuning since it will be controlled by such things as touch sensitive displays which can automatically interrupt music to bring drivers a traffic flash from a different channel or relay new deadlines on a 64 character visual display.

The BBC, in the UK is to launch a new Radio Data System (RDS) in the autumn of 1987. The service involves adding an inaudible digital signal to VHF-FM transmissions which will issue instructions to specially designed radio receivers.

A whole host of European countries are also attempting to develop RDS operations and have agreed RDS as a European broadcasting union standard.

The basic service which will begin in September 1987 will make it easier for listeners to find the station of their choice. A short code identifies a particular channel and selects the strongest signal. The basic service will also display the name of the station being listened to and broadcast an accurate clock time. By monitoring information on other channels the basic service will allow instant retuning to other stations.

It is estimated that the modernised radio sets necessary to accommodate the new system will initially cost between ten and fifteen per cent more than current sets though the price will fall as mass production rises. Already, the Dutch electronics giant Philips plan to launch an RDS set in early 1988.

Working RDS systems were produced as early as 1976 and at one stage there were eight competing systems in Europe. However, it has taken a decade to produce a single standard that was agreeable to all, making it a multi-national invention.

The capital cost of generating the additional digital information on the broadcast single is low but provision of more sophisticated services at a later stage — such as visual display news flashes would initially be more expensive but obviously a probable development.

The RDS would use programme type codes which could search for 32 predetermined programme types such as serious music and drama. Similarly, another code could provide the receiver with two separate volume controls allowing greater sound balance. The system could also provide a limited capacity data channel (like telex) which would be able to transmit a computer program or sports results to an external computer printer or visual display unit.

Before the launching of the RDS service, West Germany has made a revolutionary decision to replace one of their four television channels on its high power direct broadcasting satellite with 16 channels of digital stereo radio. Such broadcasts could be received in much of southern England on dish aerials only 44 cms in diameter.

Radio, for so many years, the poor little cousin of glamorous TV can come back into the forefront of communications by linking up with computers and providing invormation of much greater value than largely "entertainment" orientated TV.

Computer Erotica

Infocom have sent us information about a new title called (we want you not!) Leather Goddesses of Phobos. They gave us three levels of details Tame, Suggestive and Lewd. We think you're sophisticated enough for the Lewd! so (we quote) "Grease up for a erotic romp through space in LEATHER GODDESSES OF PHOBOS, Infocom's up-and-coming work of interactive fiction. Written by Steve Meretzky (a guy who knows his stuff), LEATHER GODDESSES OF PHOBOS is a hot intro to Infocom's new Comedy genre. Early in the story, you reveal yourself as a handsome stud or a sexy siren, and you'd better believe it makes a difference!

The saga begins in 1936 in Upper Sandusky, Ohio, where you're boozing it up at a sleazy bar. Suddenly, you're seized by aliens, who pin you down with their slimy tentacles as they carry you off to Phobos, a moon of Mars. You learn that you've been snatched by the raunchy Leather Goddesses of Phobos. They want to test you out with all kinds of indescribably degenerate equipment in preparation for their coming invasion of Earth, which they plan to turn into their private playground. For the first time, you admit that there's a limit to sexual freedom.

So having freed yourself from the restrictive grip of the Goddesses, you plunge into the seamy side of the solar system with your playmate Trent (or Tiffany, if you're playing as a female fatale), groping your way through puzzle after puzzle as you hunt for the things you need to build a special Anti-Leather Goddesses Machine. You're often distracted, however, by the erotic adventures to be had on other planets, in particular the Sultan's wife (or Sultaness's husband) with whom you have a full hour of wild sex.

LEATHER GODDESSES has two lesser "naughtiness" levels, but don't get sucked into either of them. Go all the way with Lewd!

You'll get a rise out of the packaging, which contains a 3-D comic book that really shows off the fine points of the Leather Goddesses. You also get a sensuous scratch 'n' sniff card (scratch it, sniff it) and an intimate map of the catacombs.

LEATHER GODDESSES OF PHOBOS is geared to the Standard Level player. It will be available in September for £29.99 for Amiga.

Hotline from Laskys

A deal between high street retailers Laskys and the software group Interlex will provide Laskys microcomputer customers with access to a hotline service for problem solving.

Microcomputer users who have in the past found the first few months of ownership difficult because their computer literacy is poor and their understanding of both the hardware and software before them is limited, will now be able to take out a three-month subscription to the Interlex telephone advice service.

Laskys see the addition of the hotline service as an important step forward in giving their potential customers the confidence necessary to make the decision to purchase and to select the right product.

The package will, for a fee of £39.99 (inc VAT), offer a six-day service (9:00am to 9:00pm weekdays, 9:00am to 1:00pm Saturdays) covering all the hardware and software options available from Laskys 53 shops.

Ariolasoft Labels

No longer purely dependent on American C64 based product, Ariolasoft is significantly expanding its own product range, including many new independently sourced programs. The majority of which will be released simultaneously across 3 or more machine formats.

To market this increase in 'Home-grown' software effectively, a new arcade/action label, *REAKTOR*, and a strategy/adventure label *39 STEPS* have been created.

First out on REAKTOR will be 'DEACTIVATORS', a game full of 'explosive' action and unusual gameplay.

Launching the 39 STEPS label will 'THEY STOLE A MILLION' — this is your chance to plan the perfect raid. Choose the target, the team and use the blueprints to plan the job — then press a key and watch it all happen before your very eyes!

Programs under licence and in the Productivity range will continue to appear under the Ariolasoft label.

New Guide to Computer Success

A new practical guide written primarily for the owner or manager of a small business who is planning to buy a computer system for the first time has been published by Enid Mumford, Professor of Organisational Behaviour, Manchester Business School.

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"The objectives of making these changes are to improve business efficiency and effectiveness and to increase the job satisfaction of staff" says Professor Mumford, in an introduction to the booklet.

The publication will also be useful to the manager of a function or department in a large company who recognises the value of examining business needs and considering the reorganisation of work before introducing a new system.

The booklet, which is based on the ETHICS method (Effective Technical and Human Implementation of Computer-based Systems) developed by Professor Mumford, costs £8 and is available from Manchester Business School, Booth Street West, Manchester, M15 6PB. Telephone: 061 273 8228.

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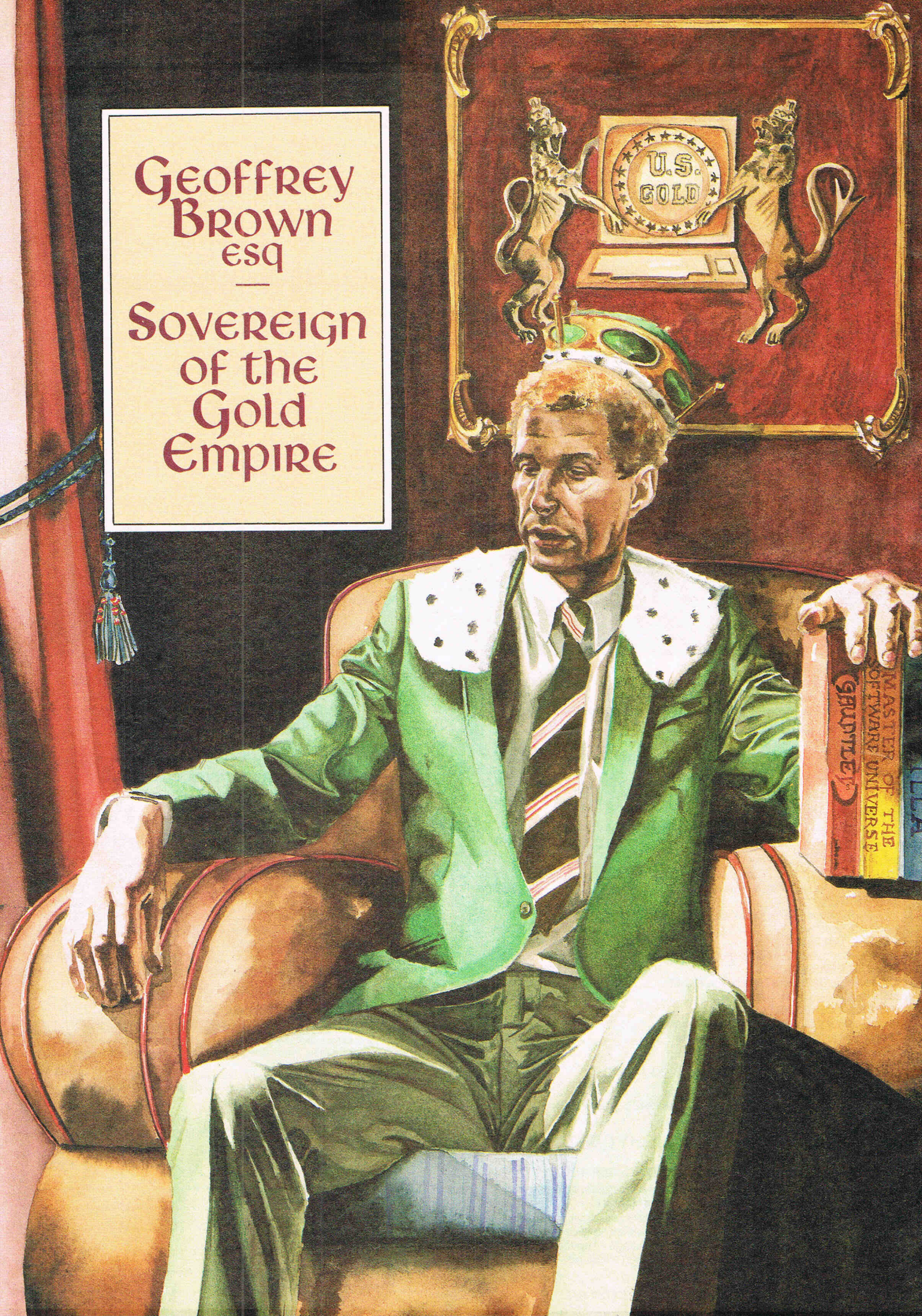

Geoffrey Brown esq
Sovereign of the Gold Empire
U.S. GOLD
MASTER OF THE OFTWARE UNIVERSE
GAUNTLET

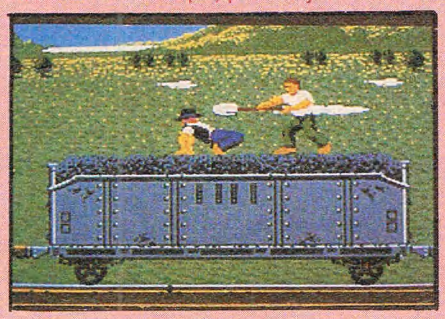
THE EMPIRE OF GOLD

He controls around 25% of all the 'home entertainment' software sold in the U.K. and a great deal in other countries. Through his own software company. That is U.S. Gold. He also commands a business that distributes about one third of all the games software that is bought in the U.K. and a considerable amount Internationally. That is Centresoft. He drives a red Testarozza Ferrari with his initials on the numberplate. He is regarded by business associates and others in his world with a mixture of affection, respect and fear.

"He's a nice guy who deserves everything he's got..."

"He's a ruthless bastard who has changed the software industry — for the worse."

Two comments from people in the software business who know him well... He is Geoff Brown, Managing Director and virtually total owner of the largest empire of "Home entertainment" software in Europe, possibly the world.



Brown has in four years risen from teacher to entrepreneurial millionaire, from unsuccessful rock musician to entertainment mogul, from computer games player to computer world power. His mercurial rise epitomises the quick fortunes that can be made by quick minds in a brand new businesses — in this case, computing — in which the only rule is that there are no rules; where the strong, fast, creative individual can have a profound and personally rewarding effect; where a man with an idea, with ideas, can not only change the industry he confronts and create a lucrative future for himself but actually make up that industry's future as he goes along.

Brown is a tall slim man with a casual, unassuming air. He does not give the immediate impression of a workaholic dynamo.

"What is the secret of U.S. Gold's success?" We asked him.

There was not a moment's hesitation, and though confidently, even arrogantly stated, the reply was essentially modest.

"The others were so bloody awful! U.S. products were simply not reaching the U.K. market in any quantity. The Americans didn't even believe the market existed. It took a long time to convince them... Anybody could have done it..."

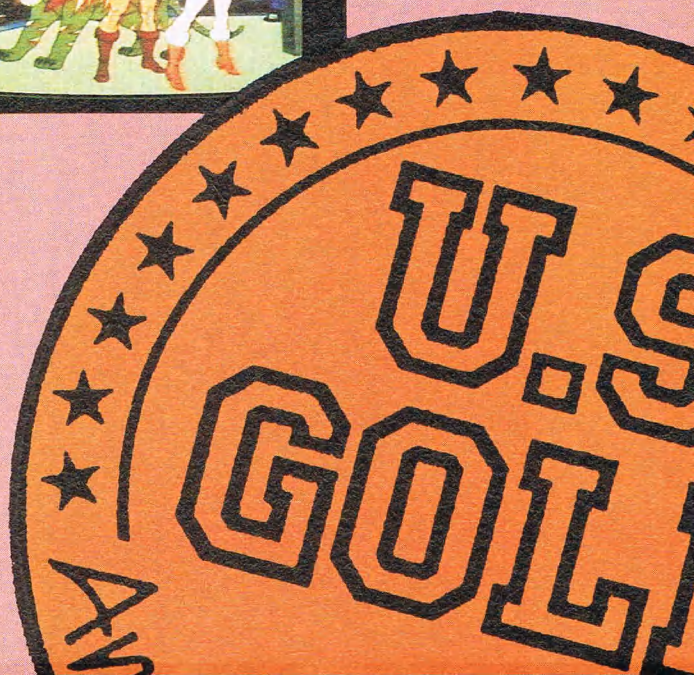
But no-one did until Geoff Brown crossed the Atlantic and persuaded U.S. companies that they could not sell their games for £30 or £40 in the already beginning to boom UK and European markets. He convinced them that the best, most profitable way for them to exploit this "non-existent" area would be for them not to try to sell their expensively packaged disks themselves but to license their hot selling games to him. He would pay them a few dollars a time and mass market the games. Nearly all of them on cassette for the odd manout UK computer kids-on a label he would specially create.

It was a simple idea and with the marketing flair that has brought him excellent rewards he aptly called it "U.S. Gold". Brown certainly found a Klondyke with U.S. Gold.

Within 18 months kids were buying games *because* they were U.S. Gold. Never mind what games they were, it was the label that guaranteed their up-to-the-minute, top-of-the-market, Levis, Big Mac, BMX, The Real Thing U.S. style sock-it-to-us authenticity. At the 1985 Commodore Show, U.S. Gold wasn't there but on the CCI Stand we had some U.S. Gold posters. The kids nearly ripped down the Stand to get them. It was surprising not if a U.S. Gold game got to Number one in the Charts but if it didn't.

It was a simple idea. Get hold of games from a whole set of different U.S. companies and market them to the kids under a single label. The better the games — and U.S. Gold did have some of the best companies like Epyx to sell — the more it would create a snowball effect on other games that might come from a totally different surce. The idea was — well a U.S. Gold mine. But why had no-one thought of it before?

Possibly because primarily it is not merely a business propistion but a concept and Geoff Brown is above all a



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THE EMPIRE OF GOLD

conceptual thinker. And,like all conceptual thinkers, he does not leap from his bath and shout 'Eureka' but develops ideas from existing lines of thought.

Centresoft

U.S. Gold is his most publically well-known name but it was based on Centresoft. It was from his experience with Centresoft that the concept of importing, i.e own label distribution emerged.

Centresoft is today the largest distributor of games software in the U.K. and also has substantial connections in other countries. Distributors are, to the public, shadowy organizational entities. They buy products — frequently on sale or return — from the games manufacturing houses and sell them on to wholesalers or direct to retail shops. A company like Gremlin or Ariolasoft for example does not want to go to the trouble of maintaining a sales force or dealing direct with orders from hundreds of shops in the UK or even thousands in other countries. So it sells in bulk to distributors at a discount of around 50% of the street price. The distributors take around 10% and sell them on to shops. It is up to the distributor to push the games into the market. Although of course the individual manufacturer has the marketing decisions to make too, nevertheles, it often depends on the drive which a distributor puts behind a product how much of it actually gets into the shops.

That is why in the software industry there is an intense suspicion of Geoff Brown and his Centresoft/U.S. Gold link up. What if, for example a U.S. Gold product say Leaderboard were in direct competition with another company's product, say Ariolasoft's Golf Construction Set. Wouldn't it be to U.S. Gold's advantage for Centresoft to lessen the impact of the competitor's game?

Brown shakes his head impatiently and points out that Centresoft is, has got to be, entirely independent of U.S. Gold. "It wouldn't be good business for it to be anything else. It handles about 30% of all the games in the UK, there are a lot of competing products among them. U.S. Gold and its competitors. Centresoft" he states unequivocably "is entirely independent of U.S. Gold."

Centresoft was started in the then modest Brown apartment near Birmingham, ith boxes of Atari joysticks cluttering up the living room. It was begun with just a few hundred pounds and the conviction that, once again, somebody was doing something that he, Brown, could do better.

Brown acknowledges the debt he owes to the sharp business brain of his wife Anne. She still handles the legal and licensing negotiations. She created, to a considerable degree, the business environment in which he could exercise his ideas.

He had liked to play computer games and realised that the way they reached shops was amateurish and disorganized compared with say the record business. So he set out to create an organization that would be professional and eficient, that would provide a service that the market could reply upon. "We have a highly expert team now . . . a twenty-four hour a day service. The best there is."

There is no doubt that you can hype a game into the charts. But you can't keep it there if it is not good enough, "We have had five number ones this year you can't buy that," counters Brown. "We have good products. We take a lot of trouble marketing them correctly. That's where our strength is."

He is scornful of the char ge that certain magazines that receive massive advertisng from U.S. Gold and Ocean labels are influenced by it into favouritism. "They give us fair reviews. Some good, some bad. Some times they tear our games to pieces . . . No we don't pay them more than anyone ele. Of course we do deals on price. If we gave your magazine 48 pages a month, you'd give us discounts too. But we get no special treatment."

The apparent injustice of the charges has animated him, aroused him from is relaxed, laid back manner. He is an unlikely businessman. Tall, almost languid, dressed casually in green. He is one of the new breed of entrepreneurs who ave made the rare jump from gamesplayer, performer intellectual to businessmen, decisionmaker, influence wielder, from thinker to man of action.

He has two university qualifications a BSc in Maths and a degree in Education. He was a teacher and a musician in a small-time local group. As he gets from

Personal Power

Suspicion of Brown in the industry is heightened by the fact that his influence stretches further even than the powerful U.S. Gold/Centresoft sphere. He is closely connected with the other software giant Ocean. David Ward, Ocean's MD is a director of U.S. Gold and Brown is also a director of Gremlin, a fast growing games company that is now number five or six in the U.K.

So around six or seven out of every ten games bought in the UK and many more across the world stem directly from the Brown Empire — and he is able to influence the sale of a great deal more. That strength, that immense personal power is what othe games houses suspect and fear. It is making some new and old games manufacturers take up marketing arrangements so that their games can be sold through U.S. Gold.

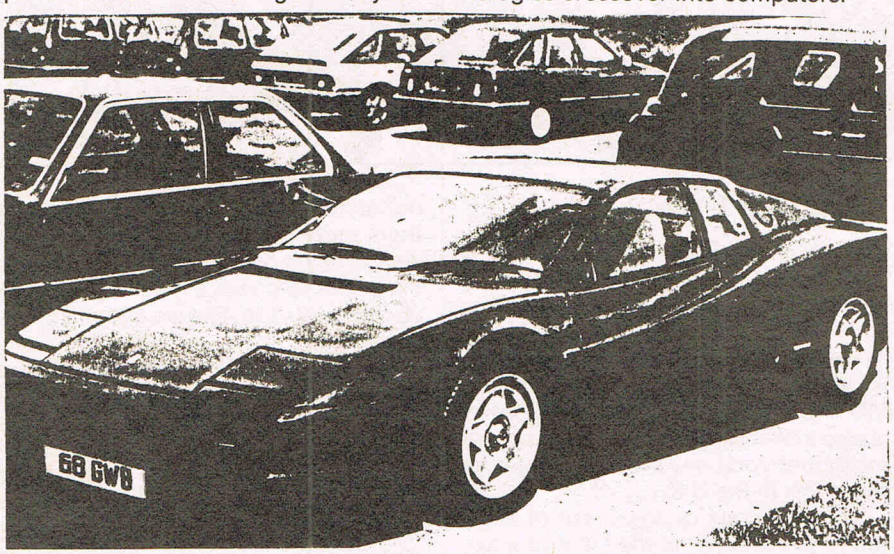
However others say that when the name on the box, the big marketing budget, the power to influence the media, the hype that almost irrespective of the quality of a game can jump it into the top 10 in the charts then there is justifciation for worry over there being such immense power in the hands of one individual.

THE EMPIRE OF GOLD

the table to sketch his company's organizational structure on a flip chart, he might be back in the classroom.

He is a man of ideas, expressed easily and fluently. He has clearly thought carefully about the implications of his business. He is neither shy nor arrogant. His expression is difficult to read. He would probably be a good poker player or difficult to outmanoeuvre in a business deal once he knew what he wanted. He is relaxed and confident.

"There was a lack of professionalism in the industry... We did the right things at the right time... Americans are tough to deal with... until they trust you... No I don't see the dedicated games machine taking off. The home computer is already virtually a games machine... we are already beginning to make games for the 68000 chip machines... when the Amiga takes off we could get into that too... but the development cost of the 68000 games is very high, too high... We see opportunities at the lower end of the business market, especially in the PC area... The software business is moving like the music business. First the full price releases, then the compilations, then the low price labels. We're moving that way too.



That's why we created the Americana label. We had a lot of games that weren't right for full price... you can't release everything at that level. They're good games. They've gone very well,... Now we're doing arcade conversions ourselves... Gremlin is working on Gauntlet for us... and we've got others coming from the Arcades too. With games like Gauntlet and Masters of the Universe, we'll being looking for more number ones in the next few months..."

The market is changing. U.S. Gold is moving away from only imports. It is recognising the need to create its own games.

Where will U.S. Gold... Centresoft be 18 months, 2 years from now?

"That's a long time to predict. Too long. In this business changes can come very quickly. Compare the situation two years ago with now. It's totally different."

The computer world, the games world is certainly still changing fast. The conditions that Brown with Centresoft and U.S. Gold so successfully exploited are not going to stay the same. In fact they are not the same even now.

Changes

We spoke to U.S. companies connected with U.S. Gold and other labels this side of the Atlantic. There is a clear realization that they are not getting all they could out of these markets. Some are beginning to look seriously at setting up their own organizations for European and other non-U.S. markets. One told us "Geoff's a great guy but why do we have to make it all for him? We get a couple of dolars a throw, that's all. We can make a lot more than that if we do it ourselves."

It may not be as easy as they think for the Brown Empire is a very effective machine. It is costly to achieve such efficiency. However even distribution channels will change as cable and videotex style networks allow downloading of software and as other technologies crossover into computers.

What does the thoughtful Geoff Brown think he will do in the face of such changes?

He smiles. "Get back into the music; perhaps... I'm involved already in recording a band."

No, he's not in the band himself. It is not a question of age, he is still into playing computer games. It is clearly important to him to keep in touch with younger generations. Now into his late thirties, he has no children of his own. "I like young people... I get on well with them..." Outside the large modern building on an upmarket industrial estate outside Birmingham to which the organization recently moved, we see him with his attrative dark haired wife climb into the shiny red Ferrari. Is the £60,000 Testarozza a toy for games player Geoff or a status symbol for the Managing Director Brown of the Gold Empire? Is he merely a fortunate ex-maths teacher who was in the right place at the right time or a shrewd tough-minded businessman who had the sharpness of intelligence to see that someone, he, could seize a young, disorderly industry and shake into profitable shape? Is he now concentrating on gathering a highly professional team around him to consolidate his hold over it or looking back over his shoulder to his past rocking days and gigs? Is he really nice guy or ruthless opportunist? No-one whom we asked was able to answer those questions with any certainty. For everyone, even for those who favour him least, Brown is something of an admitted enigma.

King of the Castle

At the PCW Show, amid the deafening hubbub, the teeming crowds, the frenzy of showtime activity, there seemed just one place where peace and quiet reigned. It was the upper floor of the grandiose U.S. Gold/Centresoft Stand. We looked down from the gallery and saw there all alone, at the top of the castle-like edifice, contemplative, at a table was the Lord of the U.S. Gold empire. He sat unmoving, apparently, enigmatically, lost in thought. Was the ex-teacher solving a maths problem? Was the musician considering a remix? Was the gamesplayer remembering a number one in the charts? Was the wealthy entrepreneur considering the purchase of a solid gold Rolls Royce?

Geoff Brown's thought processes are of interest because he affects us. He influences our choices, enhances or restricts important areas of our leisure. He plays a role in our lives. Whether his influence will increase or diminish, it is impossible to say. What is certain is that nothing that Geoff Brown does will be done without the use of creative intelligence and imagination. Those are exciting qualities in a man who has the power to put them into action. The already impressive progress of the ruler of the U.S. Gold Empire will continue to be well worth watching.

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Micronet's Multi-user Game

Despite their claim to have a multi-user game, Starnet, running, Micronet have, until now, lacked any real competitor to Multi-User Dungeon, affectionately known as MUD to its avid followers and players. Indeed, anyone who reads our magazine regularly will know all about MUD by now, as we have been carrying articles about multi-user games (MUG's), MUD in particular, for quite a while now.

Enter SHADES. Written by Neil Newell, originally as a hobby because he enjoyed playing the original MUD so much on Essex University, SHADES has recently been launched on Micronet, the computer network, which has a large Commodore user-base.

Shades began because over Christmas'85, Essex MUD was out of action and to satisfy his own curiosity, and because of his addiction to MUD, Neil sat down and started the project.

At this stage the game was only a few subroutines slung together, but a friend convinced Neil to hook it up to a modem and miracle of miracles, it worked!

The original game had only 20 rooms and 5 objects. He put the dial-up number on a few bulletin boards, and received a good response. At this time Shades was being run from home on Neil's own computer. Demand for the game grew, and a few more lines were added, including at one stage his own voice line which was rather annoying if you happened to want to speak to him!

Micronet had for some time been looking for a MUG to run, and had considered quite a few, MUD2 included (which I am told was turned down because BT wanted to charge too much for it). Shades was chosen because of its popularity, and because Neil himself took the time and bother to demonstrate Shades and its potential properly to Micronet. Negotiations began in May, when Neil first contacted Mike Brown, Mnet's Technical Manager because he thought, rightly, that Shades had commercial potential.

The game went into operation very recently and was in fact only a few days late (unlike some . . .). Presently it costs only 30p/hour, but this ridiculously low charge will not last long, and after the trial and test period is over this is to rise to 99p/hr; still incredibly cheap for what it is.

Shades is based in principal around MUD, although it differs in theme quite considerably. Neil admits he was heavily influenced by MUD. "MUD," he says, "is still the best!" A large section of it is the standard Middle Earth scenario, but many sub-scenarios exist such as the Ruined City which has a robot wandering aimlessly about and the mansion, which is based around the legendary publishing magnate of Citizen Kane fame, William Hearst's own mansion!

Currently Shades has around 500 rooms, but more are due to be added as soon as they have been written. Four games can run concurrently, each holding 16 players, though both of these figures can be increased, should demand remain at its present level. A few days after the launch, all 64 lines were jammed solidly for hours, with free lines being seized the moment they were vacated by people quitting (or dying . . .?) In fact, some people seem to like the game so much that they are even playing at times when Prestel charges connect time making it very expensive indeed to play.

Asked about Lap of the Gods (better known simply as GODS), Neil says "Clever, and interesting, but personally — and people's tastes vary widely — I never really got into it. Of course this is probably mainly because I haven't had the time to play Gods what with programming Shades so don't take my word as gospel!" I must say that I myself liked Gods tremendously, as anyone who read my review of it a few months back will know.

At present there are no wizards in the game (apart from Neil himself of course who plays as an archwizard, naturally!) as it has only been running for such a short time. The original version of Shades is still being run from Neil's own computer (a PDP II) but has very few lines.

If you want to play Shades on Micronet, then go to page 81188114 for instruction on how to play. If you have ever played MUD before then you won't really need to read these, because commands are so similar, and the idea the same. To get points, you drop treasure in Shade's equivalent of the Swamp, the King's treasure room. Once you have read the instructions go to page 8117 where you will be able to set up your persona and enter the game. Shades is available 6pm to 8am weekdays, and 1pm from Saturday afternoon to 8am Monday morning continuously (many sleepless nights here I think!) Good luck on your quest, and don't forget where you read about it!

While I have not played it at length, what experience I have had so far makes me believe that it is of excellent quality and well worth playing.

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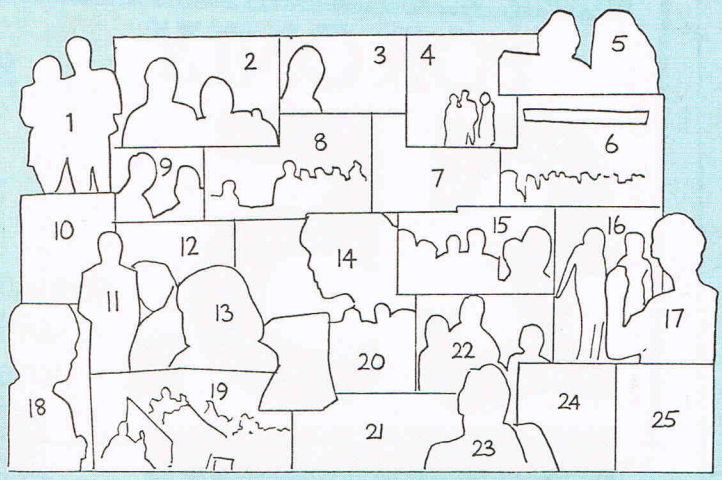
PCW Showtime!

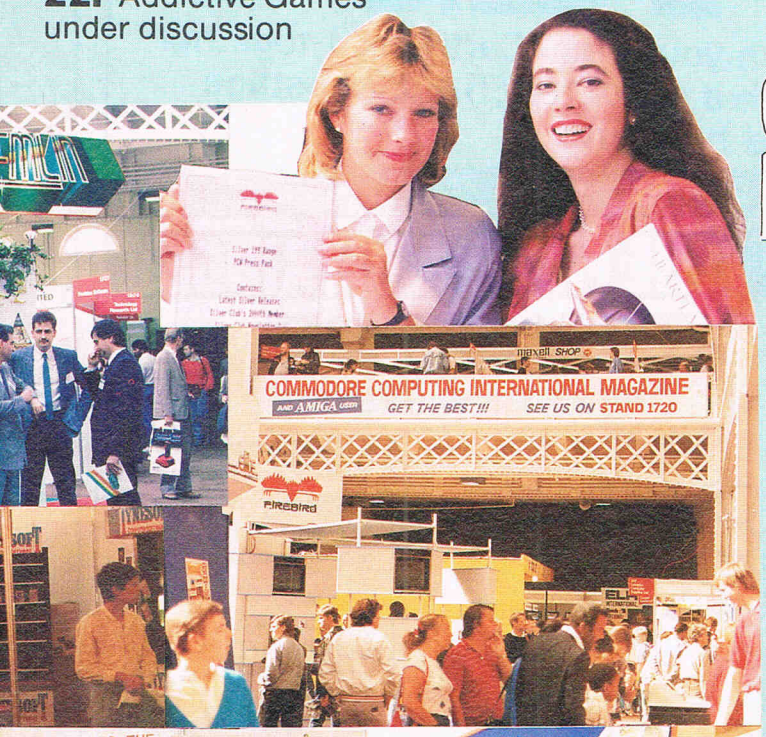
1. Nicky Stainless Steel & friend
2. Rainbirds Claire Exley and Paula Byrne
3. Hobyte's Linda Craig demonstrates
4. Ian Stewart gives his men 5 minutes to sell a million Monty's
5. Janes Cavanagh and Smith sign up the world
6. CCI dominates the Show
7. Tynesoft draws the crowds
8. Mirrorsoft reflects the optimism
9. Trivial Pursuits on Domark's stand
10. Amiga speaks
11. Ocean's David Ward Gets the Best
12. Activision's videos
13. Mirrorsoft's Jeannie Lawrence confers with a Fleet St. Editor (Her Daily Mail)
14. Micronet's Lyn Bennett frees the Modem
15. CCI welcomes the new 64
16. Martech's Lovely Leopards exchange spots
17. CCI's Stuart wins raffled watch

PCW Showpeople!

18. An Alien visits the show
19. CBM crowds them in
20. Elite's spaced out Arcade players
21. The US Gold castle
22. Addictive Games under discussion
23. Miss Cat People of Firebird
24. Kate McGibbon sells First



25. The Ending of the show. What can we rip off?



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The Final Cartridge II

Until last month, the Final Cartridge, together with Robcoms cartridges, were known as the best utility cartridges for the 64. Having received CCI's prestigious 'Utility of the Year' award, The Final Cartridge has been selling very well in the UK and elsewhere for nearly a year now.

Just before the Commodore Show in May, a French company, CAS Distribution, released a cartridge called the Power Cartridge which we reviewed last month. Now, however is the next stage in the cartridge story. H&P Computers have released a new, and if that is possible — even better, version II of the Final Cartridge.

The new final cartridge looks very nearly identical to the old one, it is small, black and pretty unobtrusive. On the back is a switch, and two innocent looking red buttons! It is these buttons that betray the first difference between versions I and II of the Final Cartridge.

Unlike the original cartridge, the version II has a neat and very easy to use menu system. Upon pressing the right hand button you are presented with the 'RESET MENU'. This has four options, all controlled by the function keys. The first option allows you to 'Reset' the computer, if for example a basic program hangs but you want to get it back, you can use reset, and then 'OLD' the program. Pressing F2 jumps you into the comprehensive machine code monitor. The last two options either give you a total reset (after which everything is lost), or reset the machine into standard 64.

Freeze

On the left hand side of the cartridge you have another red button, again which controls a menu system — only this time it is a 'Freeze' menu. Most people will now be aware of the idea of freezing whatever program is residing in memory, only to subsequently save it on either tape or disk. The Final Cartridge allows you to do this (and it is one of the best examples of this genre that I have seen).

As well as the ability to copy almost anything to either tape or disk, the 'Freeze' menu also allows you to dump whatever is on the screen, either with H&P's own centronics cable, or more surprisingly using a serial cable. Thankfully you can also go from one menu to another using F8.

As well as these features, the Final Cartridge has all the features you would expect, a disk turbo that works about 6 times normal speed, a tape turbo capable of working at ten times normal speed, a complete basic toolkit, with some excellent additions — including Auto, Renumber, Find, Help etc.

All of the function keys are redefined to allow specialist commands such as Dload, Dsave, Catalog, Run and List. For confident programers/hackers, the ML Monitor is both comprehensive and easy to use.

Overall, the Final Cartridge II is really very good. It has all the facilities that anyone could possibly need in the way of a cartridge, and they all appear to work very well. **If you are looking for a cartridge, you can't go wrong with the Final Cartridge II.**

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Has the Leopard really changed its spots?

Outside Olympia, there was a deserted bus shelter with an advertisement that read "Has the leopard really changed its spots?" Inside the National Hall, there was a noisy, packed, frenetic world that bubbled with optimism and confidence. From last year's depressed and downbeat so-called "Main Event" — CCI was virtually alone in pointing out *then* how really down-in-the-mouth the home computer industry actually was — this year's PCW Show had revived to a totally different atmosphere. It certainly seemed that the neurotic computer leopard had changed its spots.

"Terrific!"... The best ever!" enthused Paula Byrne. She should know for though now Marketing Manager at Rainbird, BT's growing quality label, she started the year at old favourite Melbourne House. Preparations for two stands at a show like PCW are enough to exhaust anyone but the dynamic Paula was still bouncing even on the last day. "It's gone amazingly well... our stand has been packed the whole time..."

Rainbird was far from the only software house to enjoy the changed atmosphere. All the big companies were overwhelmed by the crowds and encouraged by the business. U.S. Gold's glittery casle was always besieged by avid fans who may have been impressed by the videos — created by Bulletin 1000 — but a little disappointed by the lack of games to get their hands on. Ian Stewart's fast rising Gremlin attracted loads of admirers for Jack the Nipper and Trailblazer, their new releases. David Ward at Ocean's Rambo bedecked stand two story construction appeared to need protection by a burly gentleman who looked suspiciously like a Manchester United Minder.

The biggest and permanent crowds however were those that climbed all over a real arcade machine that Elite had brought. Space Harrier is soon-to-be released from the successful Steve Wilcox stable, while Alan Sugar's Amstrad PC's were successful in grabbing the early headlines, the interest at the Show itself must have disappointed him. The less than attractive, heavy-rimmed monitors drew a sprinkling of curiosity seekers but a PC is a PC is a PC, even if it is cheap and the general public soon melted away.

A slightly surprising success was the rejuvenated Mirrorsoft whose substantial stand drew a constant audience for their PC Fleet Street Editor. Pat Bitton, Mirrorsoft's Marketing Manager, took equal first place for CCI's Sharpest Suit Prize. She wore an elegantly cut three-piece trousered number.

THE BIGGEST -EVER PCW SHOW

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The other prize winner in the same category was Mike Meek of Mikrogen — very smart flecked grey with white shoes. It almost outdid Mikrogen's impressive Nick "Stainless" Steel who paraded the Show equipped with metal arm and an interestingly red-foil haired girl companion. She is shortly to have a character of her own in a computer game, Mikrogen tell us. If you total up the space occupied by the four BT companies, Rainbird, Firebird, Beyond and Odin, they probably occupied more startspace than any other company organization.

Beyond built theirs as a somewhat cardboardy Starship Enterprise control cabin. We wouldn't have trusted it to take us boldly where etc, especially as it seemed mostly crewed by a lone khaki-shorted blonde who was pouting with boredom and filing her nails every time we passed.

Firebird and Odin, now led by the non-stop enthusiasm of Tom Watson seemed at one time likely to be submerged by the torrent of kids demanding news of Firebird's increasingly succesful Silver and Gold ranges and to be allowed to put there money down for Firebird Tee shirts.

There were pressmen from all over the world — they kept coming up and interviewing CCI for opinions on the Show — and many trade visitors from outside the U.K. Dick Ollins of Trimicro from the U.S. pointed out that there are no more shows like this one in the States. "People don't bother any more" he said. "Here it's very encouraging."

The export coup of the Show seemed to be the deal brought off by Jane Cavanagh, Export Manager of Telecomsoft — BT's joint software marketing arm. Jane hammered out, on behalf of Firebird and Odin a deal worth over £1 million in games to be sold to Germany for the rest of 1986. Big though it was, however, the deal was outdone by the $3 million contract with U.S. games house Epyx by joystick manufacturer Konix. Epyx is to sell 500,000 Konix joysticks under the Epyx label in the States.

That level of commercial activity may not have been typical but there was an enormous amount of trade activity business completed at the Show.

While over the nine years of its life, the PCW Show has progressively become more home orientated, it was very pleasant to see that the stand that constantly drew the largest crowds in the "Business" section of the Show was Commodore. It was always jammed with eager

Has the Leopard really changed its spots?

AMIGA viewers. The demonstrations as they have at every show at which the AMIGA has appeared were very popular.

On the Commodore Stand, the Luton-based Bugbyte dealership was represented by the lovely Linda Craig. Not surprisingly extraordinary numbers of men seemed to find Ms Craig's able demonstrations magnetic. They even stayed on to ask endless questions of the demonstrator. Surprise, surprise Chris Kaday, Commodore UK's recently promoted MD was even more ebullient than usual. He gave the impression that he is a man who believes he has come through the worst and better days are ahead, he was particularly eager that we should see the Misubishi colour printer for the AMIGA. It was indeed an impressive combination and may prove an interesting bundle with the AMIGA for around £5000. Also on show were the long awaited Ruby Comm for the AMIGA, Y2's interesting videotex package and an exciting music product from Mimetics.

CCI's 64s

While Commodore drew the crowds for the AMIGA, CCI gave the public the first chance to get their hands on the sleek new 64C. They came in their waves and at times we had to form queues, especially as CCI's stand also had some as-yet-unreleased games like Gremlins Trailblazer. Also on the stand was the marvellous GEOS and the excellent Mouse and Cheese package from Wigmore. The mouse is to be bundled in Commodore's Christmas 64C pack CCI had the ever popular Bulletin 1000 drawing big crowds as usual.

One of the less pleasant facts was that CCI was given evidence of "back-up" packages on sale on the Show being used to rip off unreleased games demonstrated there. Piracy is illegal and CCI was told that at least one stand-holder narrowly escaped prosecution by returning a pirated disk to its legitimate and irate owners.

Enormous effort and expense had gone into the construction of many stands. Activision's contained banks of blaring videos and its subsidiary company, Electric Dreams took the CCI prize for the most original stand. "I wanted a pyramid" Dream's Marketing Manager Clare Hirsh told us. Like Tutankamun, she got one and impressive it was, too.

Ariolsoft's stand was less elaborate but their not very agreeable looking caricature tee shirts were much in evidence. Even some of the less dominant software houses had gone to great lengths to present themselves well. Bubble Bus had their well-loved bus in their normal prominent position. Ann Lovejoy had however to drive a car not a bus half way across the country every day to bring in more stock. Domark whose top people were neatly bowtied had a trivial pursuit design look about their stand. Alligata found that their new PUB Games was a great draw. Cascade with what must be the surprise hit of the year ACE, looked very well received. Long established Addictive Games and the new Piranha both seemed to do extremely well and the Minter Llamasoft was as always a centre for admirers. Hewson forgot the English summer and used Christmas decor on their stand.

So apart from the flood of new games (see box) what was new at the Show? Not a great deal. There was a new joystick from Cheetah and another one from Mastertronic. Precision sold our contributor Bill Donald's AMIGA book like wildfire. Or rather Bill Donald sold it himself as he was at Precision's Stand. Haba had an interesting CAD package for the AMIGA. Atari had a huge area and very little new on it. Micronet made a considerable impact, at least there were constant crowds at Lynne Bennett's elbow to see that the free modem offer. And on the stand of burgeoning publisher First Publishing (or First Software, if you prefer) the energetic Marketing Manager Kate McGibbon showed some interesting new AMIGA and other books and a nicely turned out FIRST Magazine.

Maturing

"The industry is maturing" we were told. "The vertically rising changes in development of new products no longer applies." What that means is that it does not seem necessary to introduce revolutionary new products every five minutes and that companies are beginning to be professionally run and market driven, instead of thrown together by technical wizzes who cannot read a balance sheet.

There is certainly a slowing down of technical change and the computer industry seems to be saying "Sorry folks this may seem less exciting to you but its a damn sight more comforting to our bank managers." Many, even most, of the companies at the Show evidenced a growing professionalism in marketing and presentation, a maturing of business expertise. "This time last year we were wondering who would go bust next" the boss of one games company told us. "Now there are about 12 companies left. All of them much better off. Though, "he went on thoughtfully," there may be only 10 this time next year."

Has the home computer leopard really changed itsit, spots? Is the up and down, boom and bust, announce your product before you've got it, techno-novelty driven homecomputer world become a stronger, maturer animal? It would be brave to claim it completely changed its spots, completely became a reformed character.

However there was at this PCW Show a noticably different atmosphere a sense that, as CCI was told "The shake-out was tough but it did us good". There was a greater belief in itself, a belief that for a great many people and a great many companies the once flaky home computer industry could more than live just for today, that it was more than just a figment of Sir Clive's imagination, that it is a real live business that can go on and stronger, for a very long time yet.

PCW Games

It was Gamesworld at the PCW this year with loads of new games being announced or previewed. At the Show arcade conversions seemed to be the flavour of the month. Elite are converting the arcade-hit, Space Harrier due for release in December, and are also converting Paperboy which has enjoyed huge success. Now Paperboy I can see being converted into a good game, but how on earth they plan to convert Space Harrier, a 68000 based machine with X-number of co-processors I just don't know. The result should be interesting to say the least! Both will retail in the U.K. at 9.95 cassette, 14.95 disk.

US Gold are releasing another popular arcade hit, Gauntlet (the two-player version) later this year (which probably means next year knowing programers' notions on what the word 'deadline' implies). US Gold's releases are covered in-depth in the US Gold interview also carried in this issue.

Firebird released Warhawk at 1.99 at the show, of which they claim to have sold an incredible 400 copies in two days. Warhawk is a classic space shoot 'em up with nice sound, music, and graphics. Harvey Head Banger, a conversation from the Amstraddle was also announced and will be released later in September.

Rebel Star sees a slight departure from Firebird's normal line of games, and is a simple war game. All three of these games are in the Silver Range which retails at 1.99 each. Contrasting with this is Cholo, a 3D vector-graphic

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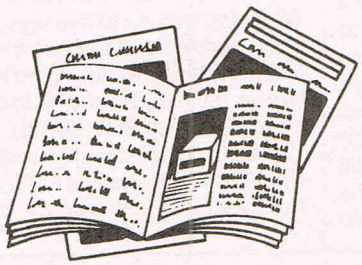

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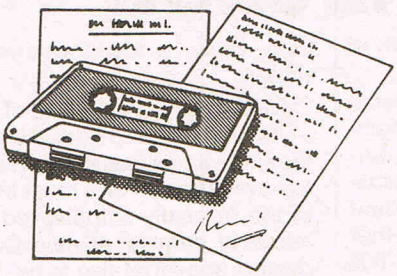

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type which will retail at 17.95 on disk. It does however look good, so expect a review very soon. Pandora is also fairly original, and should do well as long as it is well programmed. Sentinel looks like a real stunner with 10,000 different landscapes drawn in 3D "vanishing point perspective" graphics. On the C16 side their latest release is Torpedo Alley based on the ancient Sea Wolf arcade-game

CDS were announcing the launch of Collos us 4 Bridge which they say plays as good a game of Bridge as Collos us 4 Chess does at Chess. We'll sit our editor down to play this, as he claims he's an avid Bridge player. Let's see how far he gets with this program...

Domark launched Trivial Pursuit, an excellent conversion of the board game of the same name. This is the 'official' version of the game, and looks to be well written, and humorous which, after all, is what Trivial Pursuit is all about; mindless satisfaction at solving absolutely trivial questions! Read the review. Lothlorien launched Legions of Death, a war game, which seems to be what Lothlorien are best at producing. Bug-Byte announced Miami Dice, and Jeep Command.

Beyond had a huge stand designed to be the Starship Enterprise, showing Startrek videos, and demos of the new game which also looks very good.

Gremlin were showing Trailblazer on CCI's stand, which features some nice scrolling and animation. You control a ball which speeds along a chequered road, avoiding and jumping over obstacles in your path in a race to beat the robot controlled ball, or another player. The display is split-screen. See the preview in this issue.

Mirrorsoft are working on Raid 2000 for November, and Terror of the Deep for December. They are also working on an Amiga game for release in January called The Bermuda Project, written by Eugene Evans of ex-Imagine fame.

Melbourne House have a long list of releases lined up. Asterix and the Magic Cauldron is based around the Asterix book by the same name, and will retail for 9.95. You play as Asterix, and have to collect 7 pieces of the magic cauldron that is used to brew the potion that gives the Gauls their strength. Obelix follows you around, but has to be kept fed or else he will wander off, and as you need him to finish the game this could be a little bit of a hinderance! Romans, wild boars and the like stand in the path of your quest. Watch out for the review!

Inspector Gadget, based on the cartoon character of the same name, was written by new talent discovered by Rachel Davis on her Compunet Quests. Other software houses take note — there is a tremendous amount of talent floating about on Compunet just waiting for you to go along and sign them up! Melbourne have done this with some success... Judge Dredd is also coming, as is of course Fist II, followed by Bazooka Bill which is the result of a tie-up with an Australian company, Arcade.

Activision had Hacker II and Ariolasoft did *not* have the 64 Marble Madness.

Martech were definitely launching U-Chi Mata and Tarzan. Nobody could dispute this with the Jane lookalikes walking about in imitation leopard-skin caveman-cover 'alls'.

Addictive Games, who are finally releasing games to live up to their name such as Arac and the Arachnidroid (see last month's CCI) launched Head Coach (to be reviewed), and Mikro-Gen launched Stainless Steel (ditto).

Well that just about rounds up the hot releases for this year's PCW Show. Until next year, Nanu Nanu!

THE COMMODORE SHOW

Why should London get all the fun? Intercity trains may get you there from anywhere but there are lots of people with Commodores north of a line from Bristol to the Wash, so why shouldn't they have a show on their doorsteps instead of always giving it to the Southerners?

Database, the most recent Commodore Show organisers answered these questions with a single word — Manchester. Of course, it could not have anything to do with the fact that they themselves are based in Stockport just a few miles away...

Anyway, at UMIST —University of Manchester Institute of Science and Technology — a very suitable place, if you think about it — on September 12th to 14th, the 8th Official Commodore Show took place.

Inevitably, it was somewhat overshadowed by the Personal Computer World Show just the previous weekend. A number of the exhibitors, especially the major games houses, who would doubtless otherwise have come were just unable to field the resources so quickly after the big Olympia show. Nevertheless, more than 30 companies took part, including Commodore themselves who had a mini-village for the increasingly popular Amiga and to launch officially for themselves the new 64C. Chris Kaday, Commodore's newly appointed Managing Director, was able to exercise his frustrated talents as a showman in the special Commodore Theatre

Communications was one of the focal points of the Show and indeed is becoming a major factor in the minds of Commodore owners everywhere. Microlink, Modem House and the independent Compunet Club were there and another very popular stand was Micronet 800 whose offer of a free modem seems to be making a major impact wherever the ubiquitious Lyn Bennett takes the Swish new Micronet stand.

The Show might have been subtitled "Commodore Market". Anyone in search of bargains had come to the right place. There was a wide range of products from games to peripherals, at heavily marked down places. From well-known suppliers like Evesham, Meedmore, Trilogic, Adamsoft, Micro Media and Home and Business. System Software had their Petspeed and Oxford Pascal to show and Colleen impressed with their music package. Sophus, made something of a sensation recently with their transputer mounted in an Amiga.

Manchester's Piccadilly Radio reported the Show live from a specially built studio and brought to the public not only such computer world notables as CCI's own controversial columnist Llamasoft chief Jeff Minter but also local celebrities like (we kid you not!) Sexy Bexy, a Manchester-based pop singer.

CCI's own stand — one of the largest — had its usual crowds Getting the Best tee shirts and sweatshirts which seemed to have taken off as a must fashion item in the normally shirtsleeved North. An amazing number of new Commodore owners appeared also to be discovering CCI for the first time — we obviously have been too publicity shy ourselves in the past — and bought back numbers of the magazine. CCI also provided the games — many of them not yet on the streets — for the games arcade where, as on CCI's stand, the kids were able to get their hands on the new 64Cs.

Plenty of the stands did excellent business but there was among others a feeling that coming so close after the PCW Show, the Commodore Show was at a distinct disadvantage.

Nevertheless, thousands of those who came went away happy in the knowledge that they had got some cheap and good value early Christmas presents for others or even for themselves. One cheerful visitor staggered off with not one but two monitors. "Half the price I'd pay at Christmas in the shops!" he said grinning. "We need a Commodore Show every week!" That might be just a bit too often for some of us...

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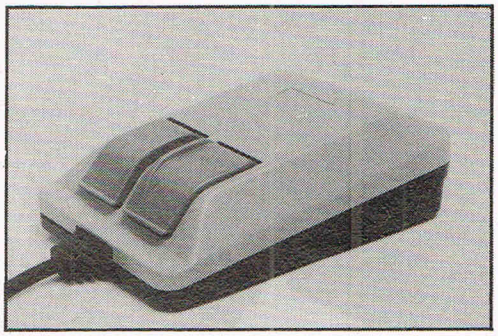

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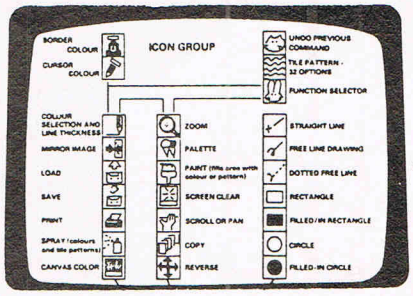

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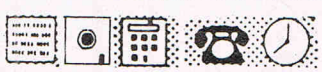

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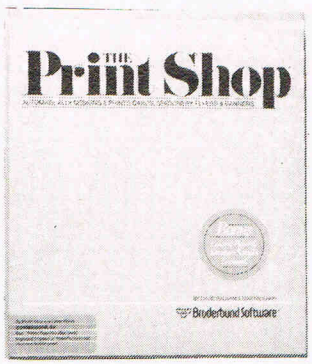

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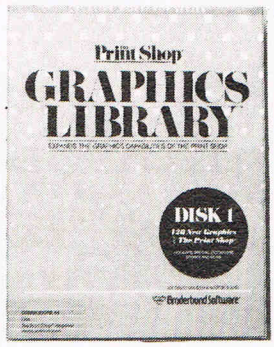

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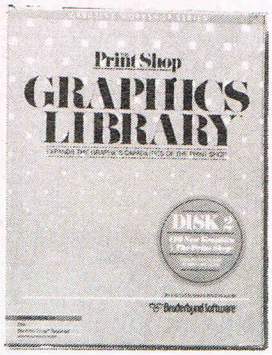

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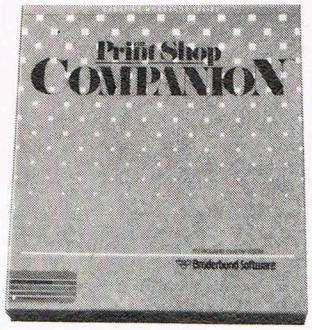

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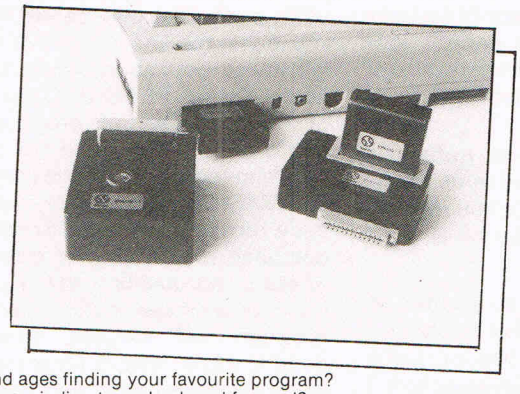

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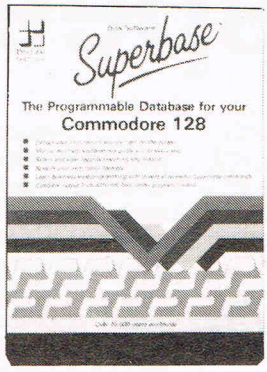

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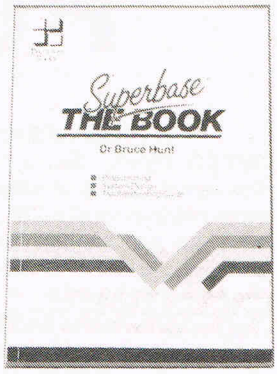

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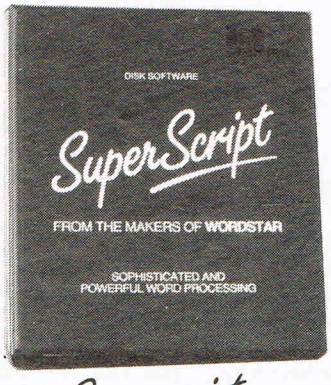

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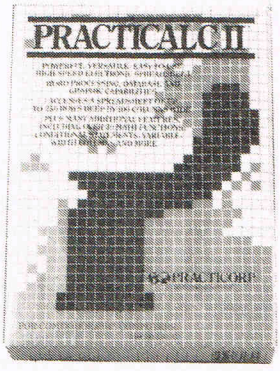

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Product Update

Petspeed 128/64

The latest addition to the PETSPEED family being for the C128, this review looks at both the C128 version and that for the C64. Those readers who are not familiar with PETSPEED are missing part of the history of Commodore computers

So what is PETSPEED? It is a compiler for the various dialects of Commodore BASIC although it can compile extensions to BASIC such as SIMON'S BASIC, etc. In this issue of CCI, there is a review of Oxford PASCAL and a brief discussion is made of just what a compiler does. Since this review deals with a true compiler I'll be looking at this question rather more deeply and seeing how this product measures up.

Consider the following BASIC program fragment:

```
10   D = 4
20   E = 6
30   D = D + E - 8
40   PRINT D
```

In simplified 6502 assembly language this would look like this:

```
LDA D
CLC
ADC E
SEC
SBC #8
STA D
JSR $FFD2
```

Notice how 4 program lines have developed into 7 in the assembly language version. The BASIC interpreter inside your machine has performed this automatically for you and converted your BASIC program into a language understood by the processor. In point of fact, assembly language is not the true language used by the processor since there are further steps required. These are the conversion of the assembly language into hexadecimal op-codes which gives the following:

```
A9 04
18
69 06
38
E9 08
8D 04
20 D2
FF
```

This hopefully explains the differences between a *high-level* and a *low-level* language. In basic terms, the higher the level, the slower the execution since it has to pass through these stages of translation until it reaches a language form understood by the processor, which is binary numbers. The PETSPEED compiler takes the users *high-level* code, in this instance Commodore BASIC and shifts it closer to *low-level* code. The code created by PETSPEED is termed *p-code* or *psuedo-code* since it is not machine code, rather assembly language which has been optimsed for speed of execution. In effect the inner workings of the compiler are a unique language peculiar to PETSPEED. Thus the two fundamentals of how a compiler operates are the ability to translate the high-level language into a language the processor understands and secondly, the optimisation or refinement of this internal code for maximum execution speed.

The product for the C64 and C128 are supplied on a single 1541 format disk together with a manual. Both use the novel coloured matrix as a means of copy protection although the C64 manual makes mention of a security *dongle* for this version which appeared to missing from the package sent to me.

The manuals are fairly terse and assume that you are an experienced programmer — a not unrealistic approach since compilation is not going to produce any benefits on a program running to a few lines of BASIC and most experienced programmers are going to be producing substantial volumes of source code.

The C64 version of the software is able to cope with most nuances of standard Commodore BASIC 2.0 other than the inclusion of **LIST, RUN** and **SAVE**. Dynamic arrays cannot be compiled since PETSPEED cannot look ahead and compute the ultimate size of these. Thus statements such as:

```
10 DIM X(Y)
```

will not be accepted and unhappily compilation will stop dead in its tracks meaning a complete and tedious restart. The acceptable form for arrays is:

```
10 DIM X(25)
```

It would have been nice to be able to recover from this and divert errors into an errors file although I've probably been spoilt by using AMIGA compilers. I could not get this version of PETSPEED to accept that I was using a 1571 drive, the system kept defaulting to the snail-like 1541, although in all fairness the 1571 was unknown at the time PETSPEED 64 was designed. The address location of each variable and array can be located by a running a utility program named REPORT, a very useful and powerful facility with output to the screen or Commodore serial printer. The use of integer variables is strongly recommended by the software suppliers for best results with PETSPEED 64 — you should be doing this anyway although very few programming texts appear to point out the advantages of integers over floating-point variables in terms of saving memory. PETSPEED 64 is still the best BASIC compiler for the C64, although in common with the hardware, it is beginning to show its age.

PETSPEED 128 takes advantage of the superior hardware in terms of memory and processor clock speed — the compilation process can take place under 1.0MHz. or 2.0MHz. modes. The dynamic array problem is solved by halting execution of the compilation cycle and requesting the user to input the array's size. Certain BASIC 7.0 statements such as **RESTORE** and **COLLISION** are restricted in that they cannot take an expression and must instead use a constant line number and **RESUME NEXT** is not supported although **RESUME** <**line number**> is. Extensions to BASIC 7.0 are fully supported by this version of PETSPEED and the manual is considerably more detailed than that for the C64 version.

A powerful directive in PETSPEED 128 overcomes the problem of BASIC 7.0's inability to redirect the standard input of the C128 — thus your program can support internal files.

The manual gives some coverage to the problems associated with the 1571 drive and provides techniques to over come this. There is an additional utility on the disk called ERRORS which will locate the line number of the problem area in your source code, again very useful. Overall PETSPEED 128 is a piece of software no serious programmer can afford to be without. Do not be misled into thinking it will improve the quality of your BASIC programming — bad source code remains bad source code and no compiler on Earth will change this. There is no question that PETSPEED will improve the execution speed of your program and provided your source code is *clean*, that is error-free, based on solid algorithms and follows the recommendations in the complier manual, execution speeds can approach that of true machine code without the considerable hassles assembly language undoubtedly makes. PETSPEED has always been a good product and it has been made even better in the C128 version — highly recommended.

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Is it a bird? Is it a plane? No, it's SUPER FELIX! He knows who

Twang goes Jane

I am not surprised that the name of Lady Jane ('Made in Heaven') Smith of Telecomsoft is rarely off anybody's lips these days. Not only are there rumours that both the Archbishop of Canterbury and the Pope personally requested a photograph of her in her daringly cut nun's habit to keep in their vestries, but it has been reported to me by unimpeachable sources that the most exciting event at the PCW show was an 'encounter' between the gorgeous Jane and none other than Sir Marc Pierson (his family owns The Financial Times, Madam Tussauds etc). Jane who was wearing her now famous black rubber nun's habit apparently required the lower part (skirt I believe it is called) to be carefully 'buffed' (not my word I assure you) with black cherry Blossom shoe polish. 'To keep up my shine' as she charmingly put it.

All 500,000 males at the PCW show volunteered but Sir Marc — whose family billions were founded on the fabulously successful Beyond software and who is reputed to have paid a cool 5 million dollars for the rights to Star Trek — was the incredibly lucky man. Apparently he, in true Star Trek mode, was determined to boldly go where no man had gone before. The 'twang', I'm told was heard as far as London Airport.

After his close encounter of the fourth kind with the wondrous Jane, Sir Marc looked pale and would only comment that 'Lady Jane was' heavenly, absolutely heavenly'.

We also heard that Jane, who arrived at the show in a chauffeur driven Mercedes truck (a present from the German company for past spiritual services to the Mercedes Board of Directors) to carry away her 'collection'. This was several thousand tee shirts donated willingly by every stand at the show in acknowledgment of ex-nun Janey Waney's successful prayers for the software industry. We understand she is modelling them 'wet' at a fashion show in a Jacuzzi in the Vatican on Christmas Eve. As everyone is saying these days 'Isn't Jane absolutely divine?'

Barryhead Revisited

I can reveal that Lady Amanda du Barry in a corporate coup d'etat has grabbed control of the entire U.K. Press Relations empire of the fast-growing Ariolasoft. The lovely Lady Amanda, who a mere year or so ago joined Ariolasoft as Marketing Supremo Frank ('Tomorrow the World') Brunger's P.A., has now emerged not only looking like Dallas's Sue Ellen, but a winning-style player in Ariolasoft's giant-sized software successstory.

Sources intimately close to Lady Amanda who is interestingly retiring for a press officer, refuse to provide personal details — ('I have no personal life. I am entirely devoted to Ariolasoft') — and staunchly maintain that it was not her aristocratic connections but her achievements in getting top golfers to, I quote, 'play around' and a certain large American gentleman (called, I believe, 'Refrigerator') to 'touch base' that gave her the new press job. I'm sure those scurrilous rumours concern onyl Ariolasoft's smash hits 'Golf Construction Set' and 'Touchdown' football game, not the cool Lady Amanda herself. But who can tell these days? By the way, I fear Lady Amanda, whose family estate includes fabulous pearl bearing oysterbeds off the east coast of the U.K., is purchasing a new automobile. Her Ferrari broke down while she was practising for the Grand Prix at Brands Hatch, storming off the track in spite of a personal apology from Enzo Ferrari himself, snarling about having 'to push this old banger' she immediately ordered a Lamborghini. Ah yes, as Scott Fitzgerald said to Lady Amanda's Grandmother's butler, the rich are different from the rest of us.

For King and Courtney

Mr Courtney King, Sir — CCI's reviewer and world influence on the C16 scene — during his recent visit to CCI Tower was less than impressed at our efficiency. His palatial mansion, it has a swimming pool on every floor and a full size golf course in the basement, in wildest Hants is run like a military establishment. So he sent his sister famously beautiful (Miss Jamaica 1985) Beverly-Angela to sort us out.

Beverly-Angela reputedly is the most brilliant student ever to have studied economics at any university. She is also a highly in demand and very highly paid business consultant with clients like IBM, and next chairman, her brother Michael, is thought to be the largest shareholder, beating Shell, and the UN. The billionaire Sultan of Brunei is said to be madly in love with her and to have offered her a position as 'close personal adviser'. 'Name any price and I will throw in the largest diamond in the world', he said. She told us. 'I have no intention of accepting such minor offer. Anyway, my chef who used to work in the fabulous Beewea Restaurant doesn't like Bruneian pimentoes.'

CCI could only afford about 89 seconds of Beverly-Angela King's incredibly expensive time but in that short period she has brought her amazing brain to bear and solved all of our problems. 'She swept through our organisation,' said Dry Fly Sherri CCI's production princess with her usual brilliant turn of phrase 'like Hurrican Charlie'. I can assure you that even the shortest acquaintance with Mr Courtney King, Sir or his extraordinary sister could change your life. It has certainly changed mine.

Beverly has now gone off to re-organise the World Bank which she is financing with her own money. 'Capitalism is on the way out... It's time somebody sorted out this global mess,' she said casually as she left in her solid gold Rolls Royce. If anybody can do it, it will be Ms. Beverly-Angela King. Don't be surprised if the whole world ends up ruled by a King.

N'eau Comment...

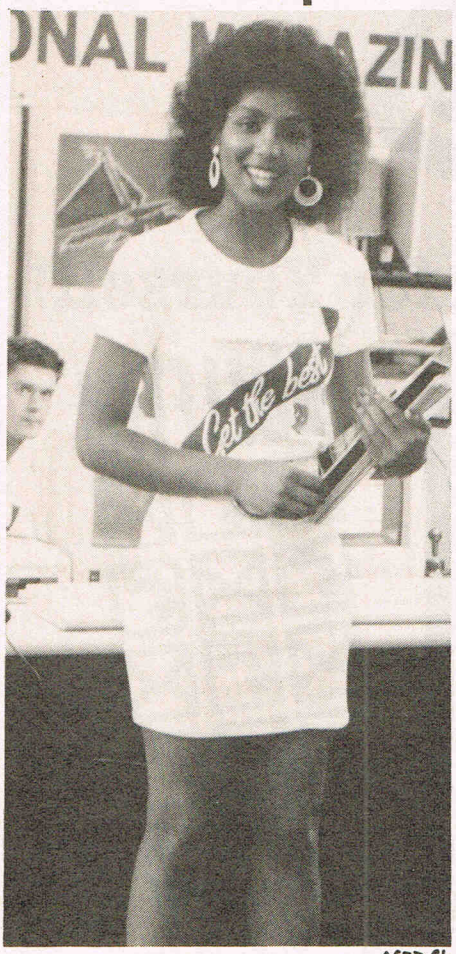
I hear that John Picking the live wire marketing supremo of Addictive Games had a real problem when his hotel, the Dorchester I believe, for the PCW, period ran out of water. The Management were at their wits end till John Picking used his considerable influence with the chairman of the Metropolitan Water Board and had a truck of ice cubes brought in as a stop gap to enable everyone to clean their teeth at least.

Addictive have an American Football game ready to hit the streets shortly. John told me that he is selecting the most beautiful girls in the world for a team of cheerleaders starting with the smashing girl featured in their tee shirt ads. It seems that she is Miss World Football and believe it or not turned out to work at John's local pub. John, the spoil sport, wouldn't tell me if she was as good at Addictive Games as she looks.

you are! And why!

SHARON WASN'T TOLD AGAIN!! DONT TOUCH THIS BOB COLLYER!

Loud Show Report



AGED 86

Anthony Mael's Grandmother

That nice Sir George Jefferson, he's the Chairman of British Telecom and gives me all my phone calls free, tells me that they have discharged the previous Boss of Firebird so that they could take on the world famous Open Champ golfer Tom Watson. I must say Tom is a real sportsman. He offered to come and play around with Anthony Mael's gorgeous grandmother who happened to be on CCI's Stand. Even offered to help the old lady clean her teeth with his niblick, I am told. Really good sports these Firebird chappies, especially in the bunkers.

And what's this I hear about Ariolasoft and Electronic Arts? Are the true lovers splitting up? And is divorce in the air for US Gold and Microprose? And how was it that nobody had told John Philips of Activision that his company had an AMIGA Gamemaker out (My Editor swears that when he told Johny about it, Activsion's Marketing Wiz rushed off and was never seen again!) If it comes to that why was Activsion's bigboss looking so lonely on his Guiness Book of Records Stand? And where was Argus Press, have they given up any connection with the computer industry. (My Editor says that if it weren't for Peter Holme and Bugbyte, we'd all be asking Arguswho? He thinks that's a joke!) And where was Pauline (Bondage — Endurance — There is such a thing as a C16 International Karate) Garsden? Hiding under the empty On the Hook Stand I suppose. And why was that disgusting Tiny Julie Rosen parading round the Show with a man who he claimed was his father! A likely story. Nobody who writes for this magazine would have a dad who would openly admit to owning a nasty obscene AT★★I! Of course the man who really runs the world is not Sir Bob Gedditoff, but Sir David Carlos. He is, I can reveal, the power behind everyone, everywhere in the computer world. I have to tell you that I saw him talking earnestly to everyone on every stand simultaneously. Echoing throughout the hall, like Midas' words to the grass, was the phrase. "I have solutions for all your problems." Sir David can help you too with your personal or computer problems. Write to him c/o the illegible Michael Boxter 007, Brighton Pier, with s.a.e. of course.

I have to offer apologies to everyone. CCI committed the heinous sin of putting a tacky game on one of the sexy new 64s on our stand at PCW. It must have been frightfully boring as one little kid actually fell asleep over it and had to be carried away snoring by his fat dat. What was the game that got the St Felix of Boredom Prize? I wouldn't dream of telling you it was Thanatos's Sanxion. And by the way, just to confuse matters we hear that there is now to be a game called Thanatos. Bore them all to death is what I say.

I heard at the Show or rather I had 79,000 out the claimed 80,000 that had been printed thrust into my pockets and handbag that a new computer mentioning newspaper called 'Plop' I believe was being published. The MD, Tony Stock, my Editor tells me has the most impudent way of approaching our advertising sales staff — he offered one of them, Max the Ad, who happened to be driving past Olympia in his solid platinum Rolls about a million pounds a month to go and work for this so-called "newspaper". I read with attention all 79,000 of the copies thrust at me and couldn't find an interesting or correctly spelt word about computers. It did have the name Tony Hetherington all over it so I suppose that might be the reason. Still, perhaps anything would be better than the other PCW — Popular Computing Weakly. They managed to mention the new 64s at the Show but not that they were on CCI's Stand. Oh aren't we just green with envy darling! I suppose they must be shaking in their shoesy-woosies. How would you like someone to come and 'plop' all over your weakly doorstep? Or is it, in view of how boring it has become, called being 'banged to rights'?

Adios, Amigos!

Super **Felix**

Book Review

SONGS OF DISTANT EARTH

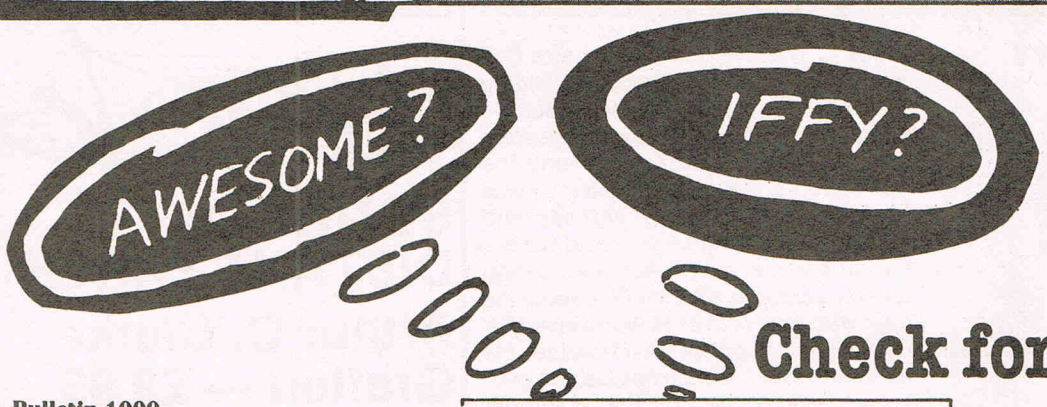
Arthur C. Clarke
Grafton — £9.95

Science fiction novels usually conjure up images of space wars, ray guns and other bizzare ideas. Reading Arthur C. Clarke' novel, The Songs of Distant Earth, may change your outlook as to the ideas with which science fiction can deal. This novel is so much more than the exploits of a heroic figure in outer space and his equipment of this ultra modern era. It examines human relationships and the impact one civilisation has on another.

The novel deals with the relationships that follow between the Thasalssans previously 'seeded' from human stock, and the wakened survivors of a doomed earth, travelling in a hypership until then kept in suspended animation. The survivors land on Thalassa in search of ice to repair the protective shield of their spacecraft. Clarke looks at the relationship between woman, man and his environment and political conflict so accurately, one feels he is writing of the earth now, for there are so many parallels between Thalassa and earth today. Clarke does this extremely well by carefully blending science fact with imaginative fiction. Examples of this can be seen when he writes about certain techniques used by the earth survivors all of which link directly with scientific theory held by scientists today. Also impressive is the way he talks about religion in his work. He gives us food for thought by suggesting a possible development for the many conflicting religious faiths that exist today.

On the whole I found the book extremely well written and it makes enjoyable reading for all ages as there are themes included to interest everyone. A book I would recommend to all to read for it brings to light some of the more serious issues that fact us today and their implications for the future. Arthur C. Clarke has yet again proved his great gift for building upon science of today and many of the issues that surround us to bring a book that is more of predictive value than fantasy. Let us hope he continues to set the pace in science fiction writing and goes on providing us with such brilliantly written novels of ourselves, our environment and our knowledge. **B A K**

Inside Info



Check for Yourself!

Bulletin 1000

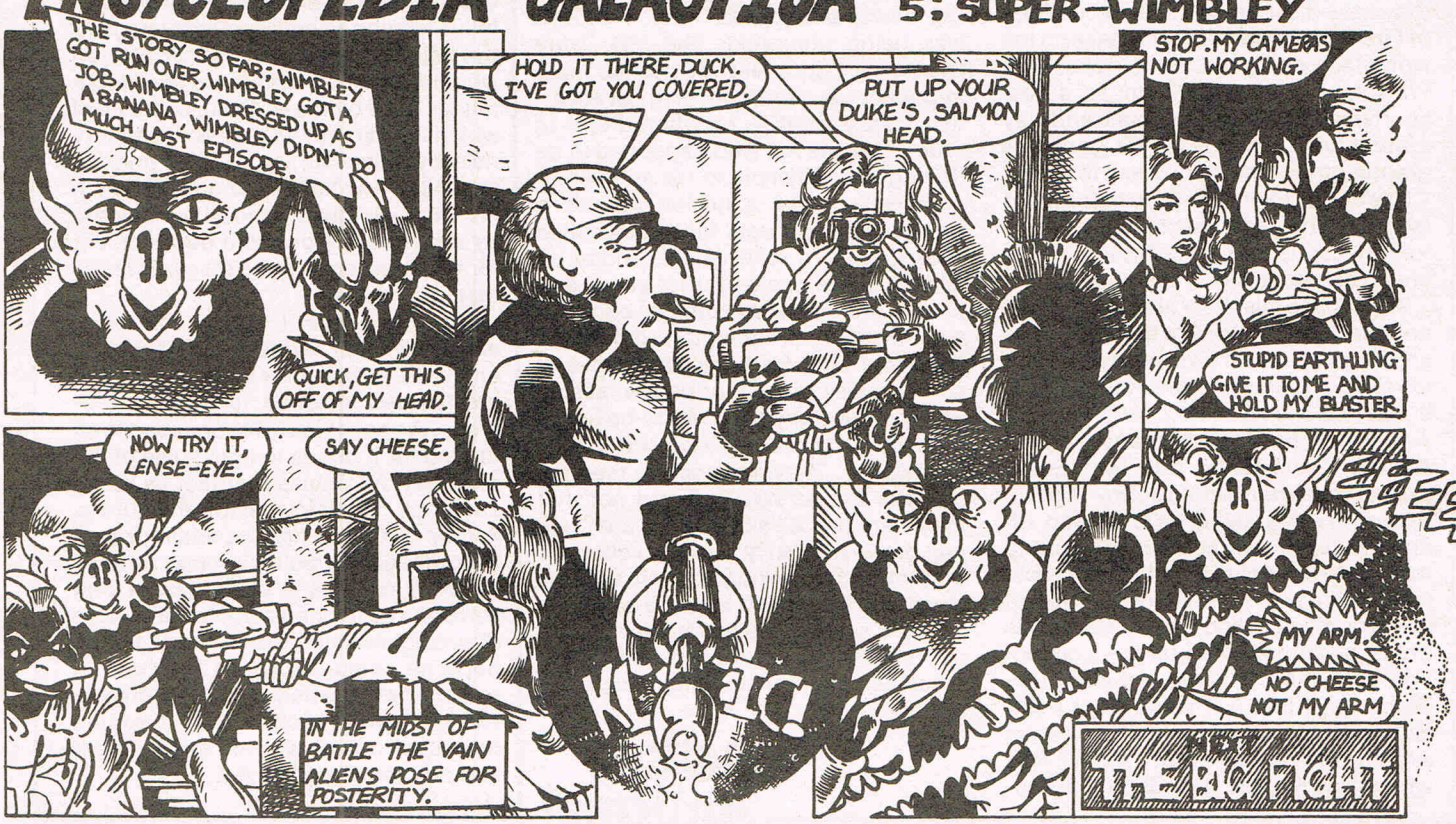
CCI brings you once again exclusive news of what the marvellous Bulletin 1000 will be showing in the coming month at quality computer stores around the UK. (Does any other country have the same idea going?)

Led by the svelte, high-voltage Julie Inskip, Bulletin 1000 sets out to present you with an entertaining half hour video that gives you a chance to see before you buy the hottest properties on the current games market. Here you can see the latest list of goodies that Bulletin 1000 will parade for your delectation. If your own local computer store isn't showing you Bulletin 1000's latest taster of what's going on in the GamesWorld, ask them why! Keep up the great work, Jumping Julie!

HEWSON	ALLEY KAT
ANCO	THAI BOXING
ANCO	SPORTS 4
MIRRORSOFT	ZYTHUM
ADVANCE SOFTWARE	HARDBALL
BEAU JOLLY	COMPUTER HITS 3
DURELL	THANATOS
DURELL	BIG 4
ARIOLASOFT	DEACTIVATORS
ARIOLASOFT	CAMELOT WARRIORS
ARIOLASOFT	MARBLE MADNESS
ARIOLASOFT	THEY STOLE A MILLION
OCEAN	HIGHLANDER
OCEAN	GALVAN
OCEAN	MIAMI VICE
OCEAN	THE GREAT ESCAPE
OCEAN	STREETHAWK
OCEAN	NIGHTMARE RALLY
IMAGINE	KONAMIS GOLF

BULLETIN 1·0·0·0

ENCYCLOPEDIA GALACTICA 5: SUPER-WIMBLEY


THE STORY SO FAR; WIMBLEY GOT RUN OVER, WIMBLEY GOT A JOB, WIMBLEY DRESSED UP AS A BANANA, WIMBLEY DIDN'T DO MUCH LAST EPISODE.
QUICK, GET THIS OFF OF MY HEAD.
HOLD IT THERE, DUCK. I'VE GOT YOU COVERED.
PUT UP YOUR DUKE'S, SALMON HEAD.
STOP. MY CAMERAS NOT WORKING.
STUPID EARTHLING GIVE IT TO ME AND HOLD MY BLASTER.
NOW TRY IT, LENSE-EYE.
SAY CHEESE.
IN THE MIDST OF BATTLE THE VAIN ALIENS POSE FOR POSTERITY.
KLIK!
EEEEE
MY ARM.
NO, CHEESE NOT MY ARM
THE BIG FIGHT

The great Christmas extravaganza

9th official Commodore computer show

LOCATION

Champagne Suite & Exhibition Centre, Novotel, Hammersmith London W6

HOURS

10am-6pm Friday, November 21

10am-6pm Saturday, November 22

10am-4pm Sunday, November 23

RANGE

On show: the entire Commodore family – from the C16 and Plus 4 to the 64, C64, C128 and the fabulous Amiga.

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The centrepiece of the whole show – this is where you'll see for the first time the exciting new products that will make the Amiga the most talked-about computer range of them all.

WHO'LL BE THERE?

Everyone who's anyone in the growing Commodore world – including a number of mystery celebrities. The last time a Commodore Show was held in London it attracted a record 20,000 visitors.

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Write today for your advance tickets. Walk past the queues and save money too – £1 per head off the normal admission prices.

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Admission at door: £3 (adults), £2 (under 16s)

9th official Commodore *computer show* **November 21-23 1986**

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MEGA REVIEW

CCI Rating C64

CRISP

War-Martech

If, when you read an inlay card and you read about blasting aliens, you put it down straight away, well, my message to you is 'don't judge a book by its cover' nor WAR by its inlay card.

Although WAR is a shoot-em-up game, it's not like your run-of-the-mill, what another old shoot-up game. It does resemble 'Starforce' a little, but instead of the screen running from top to bottom it scrolls from left to right. It is also much harder than 'Starforce'. It is the usual story of aliens heading towards earth and you've been chosen (whether you like it or not) to fight them off. Do games designers read nothing but old fashioned SF?

This alien planet is kept going by twenty cylinders and they're all linked together. Some are residential, some are military etc. Each cylinder is connected via an escape portal, for the VIP aliens to escape if you manage to destroy the cylinder. When the game starts, aliens will come flying at you. When you've destroyed all the aliens, the screen will go a different colour and a countdown will start. You then must get into the cylinder to destroy it. You have to choose the right colour code to get out.

WAR has a smart way of doing the loading screen, but it does take a long while to load so go and make a cuppa or something!

The graphics are sharp and clear and easily recognisable. The sound is also very good. The high score table is quite hard to read but is quite well done. Overall it's one of the best games released recently where you can let your aggression really hang out.

Martech is beginning to emerge as a top games house. Some of the squarer critics may have looked down their nose at the Samantha Fox release but the games playing public certainly took it. WAR is a very good follow up to that successful release.

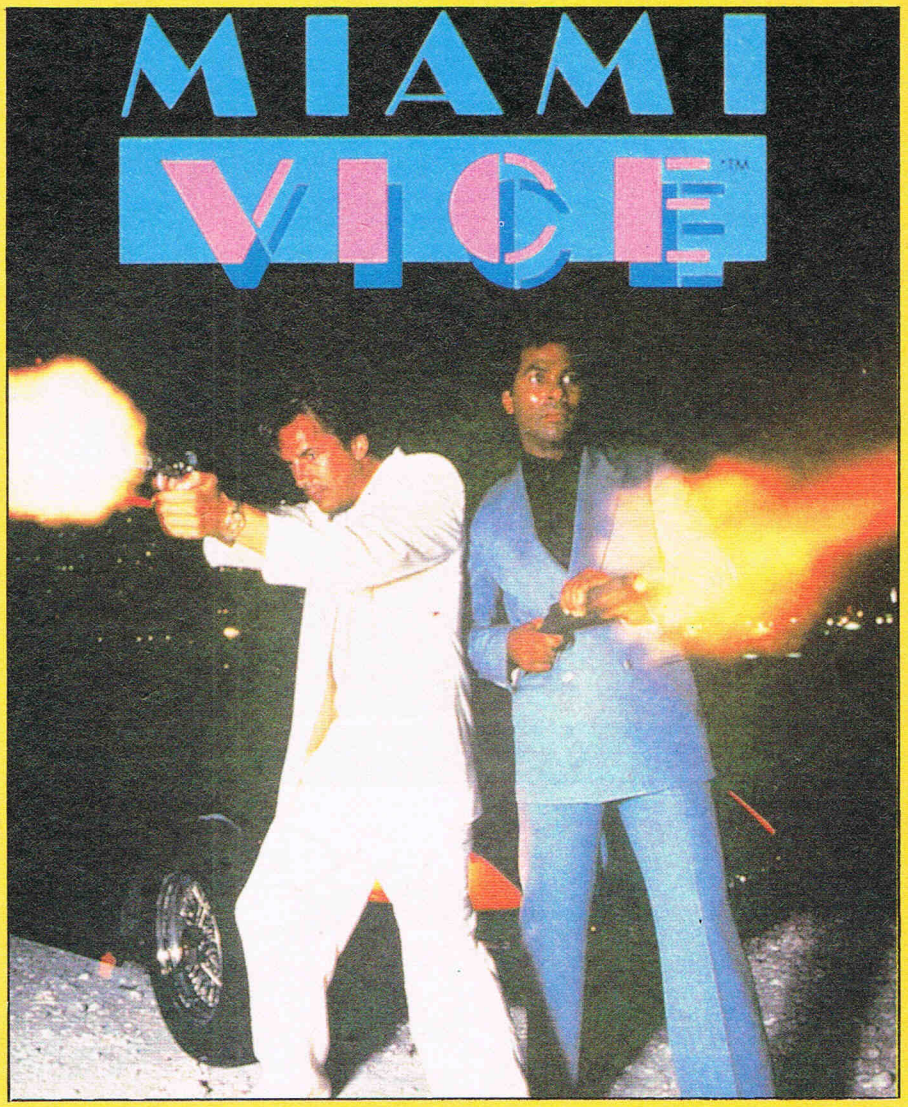
JOHN ARTHUR SAYS "MARTECH IS BEGINNING TO EMERGE AS A TOP GAMES HOUSE!"

Price: £9.95
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: CRISP

MEGA REVIEW

CCI Rating C64

CRISP



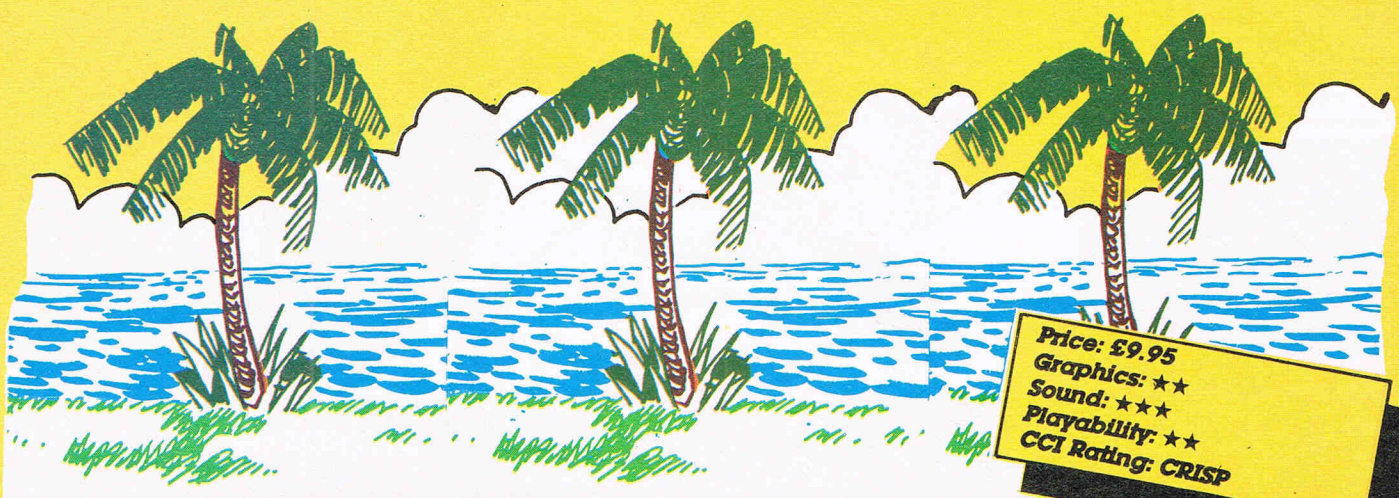
Miami Vice — Ocean

You've seen them on TV. You've heard the pop songs. Now take on the role of drug-buster in the exotic city of Miami in the scuffed designer-label shoes of Crockett and Tubbs. Like, man, yeah, uh . . . if you know what's good for you, like let's go for it . . . Crockett and Tubbs, man, have just heard that a one million dollar shipment of contraband goods is due in the city on Thursday. All you know is that these big deals usually take place under cover of darkness on Sunday. Your task is to squeeze out as much info as you can by interrogating all drug dealers you know of. You start off with the scum of the city and go downhill from then on, ending up with the big cheese of the place. ('The big cheese! Cheddar or Camembert? Ed.) The top people will have more information if you don't shoot 'em first.

To carry out your task you are supplied with a car that would do James Hunt extremely well. You must drive round the streets of Miami trying to discover the hideouts of the drug dealers. The car has pretty easy controls with accelerator, brakes and left and right turns. If you are travelling too fast or too slow you car will not turn correctly. When you get to a location that you'd like to investigate, you must stop on the desired road and get out. Your car display will change. If you find a bag of contraband, it can be collected by walking over it. Your boss has provided you with a timetable of where crooks will be at what time (very useful!).

The graphics are pretty small and pretty weedy but the sound is smart and closely resembles the MV theme tune. Overall a nice try at a smart TV prog. I think Ocean could have come up with another winner! Certainly the TV series has got millions of fans so why not the game?

O.K. my man, let's hit 'em!

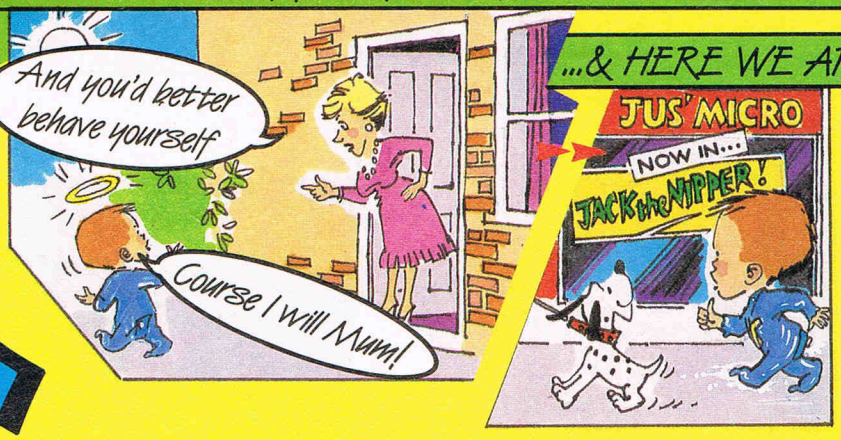


Price: £9.95
Graphics: ★★
Sound: ★★★
Playability: ★★
CCI Rating: CRISP

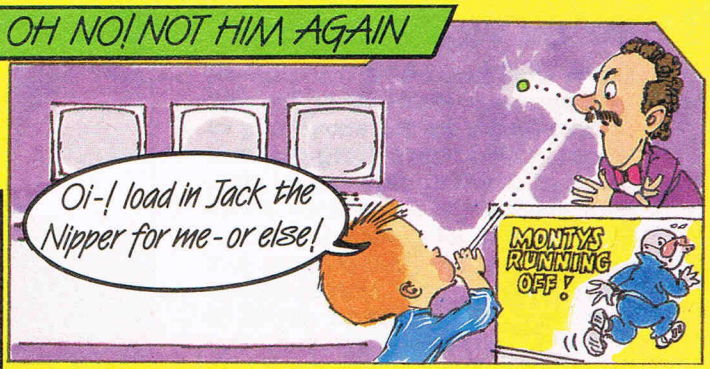
AHH!.. WHAT A LUVERLY DAY.... FOR A WALK TO THE SHOPS!

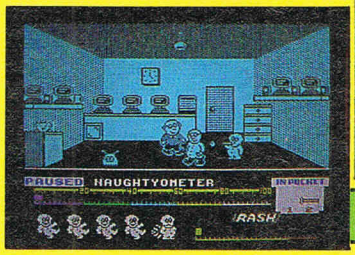
CAN YOU PUT A STOP TO THIS LITTLE MENACE'S EXPLOITS?

JACK THE NIPPER...



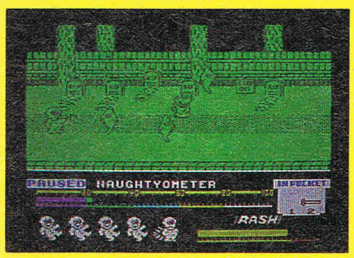
OH NO! NOT HIM AGAIN

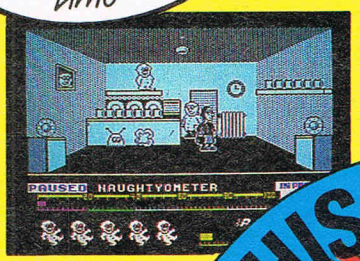


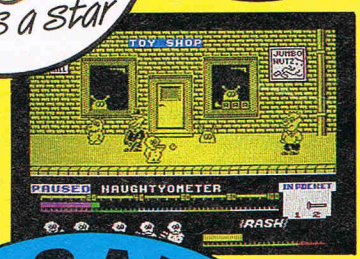


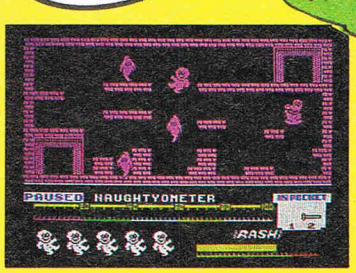
...OR SO THE STORY GOES-WE THINK!

AND SO... A STAR IS BORN...









I luv scaredycats
And I always have a smashing time
Me's a star
FREE badge with every program!
Just look what I can do!
Ha Ha! I'm a monster maker
Bet ya can't stop me freeing prisoners
Ugh teddies, they must think I'm a baby!
BUY THIS GAME...OR ELSE!

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GREMLIN

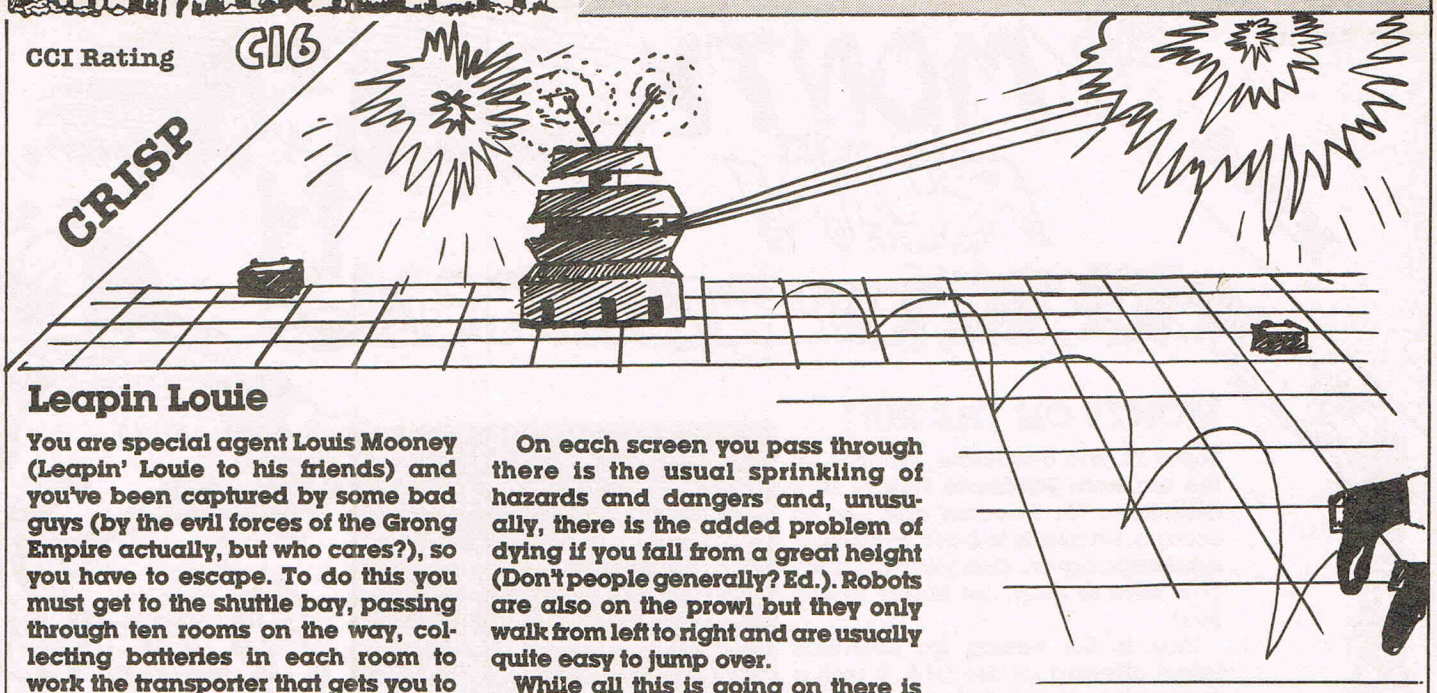
SPECTRUM 48K · MSX · AMSTRAD ·

ARE YOU TOO MUCH OF A WIMP TO PLAY THIS GAME

MEGA REVIEW

CCI Rating C16

CRISP



Leapin Louie

You are special agent Louis Mooney (Leapin' Louie to his friends) and you've been captured by some bad guys (by the evil forces of the Grong Empire actually, but who cares?), so you have to escape. To do this you must get to the shuttle bay, passing through ten rooms on the way, collecting batteries in each room to work the transporter that gets you to the next room (Phew! I'm glad that bits over).

There you have it, a perfect setting for a colourful platform game that is (in my opinion) the best of its type on the C16. I played this game at the Commodore Show on the Audiogenic stand and I was impressed. My view of it this time confirms my original opinion.

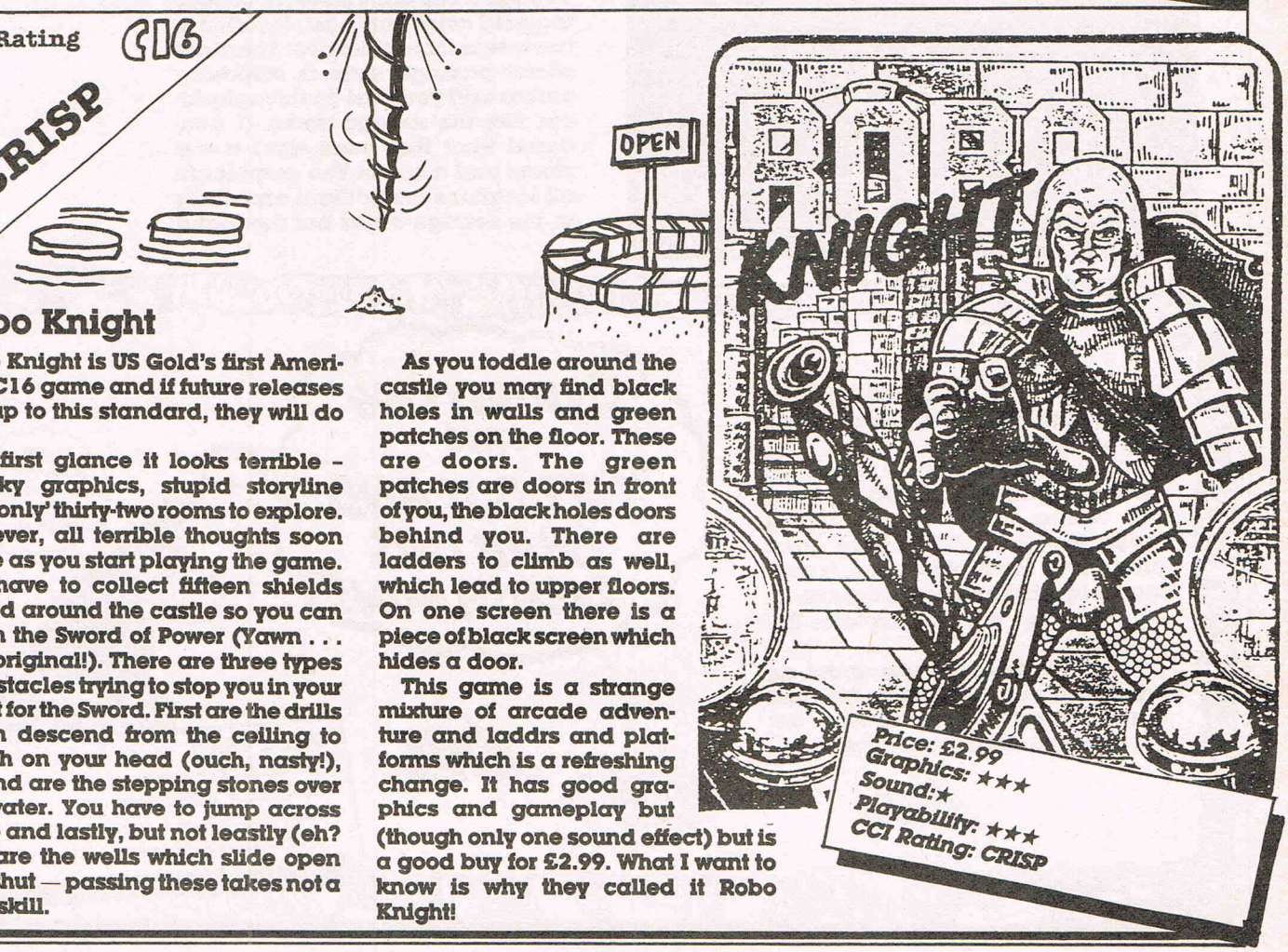
On each screen you pass through there is the usual sprinkling of hazards and dangers and, unusually, there is the added problem of dying if you fall from a great height (Don't people generally? Ed.). Robots are also on the prowl but they only walk from left to right and are usually quite easy to jump over.

While all this is going on there is music blaring out in the background – sound and graphics seem to be getting better with every release now, and this game is no exception to a welcome trend, even if your man does rather look like a matchstick bird. The graphics are well above average. This is the best platform game I have played for the C16. A good buy.

Price: £6.95
Graphics: ★★★
Sound: ★★★★
Playability: ★★★
CCI Rating: CRISP

CCI Rating C16

CRISP



Robo Knight

Robo Knight is US Gold's first American C16 game and if future releases live up to this standard, they will do well.

At first glance it looks terrible – chunky graphics, stupid storyline and 'only' thirty-two rooms to explore. However, all terrible thoughts soon leave as you start playing the game. You have to collect fifteen shields dotted around the castle so you can reach the Sword of Power (Yawn . . . how original!). There are three types of obstacles trying to stop you in your quest for the Sword. First are the drills which descend from the ceiling to smash on your head (ouch, nasty!), second are the stepping stones over the water. You have to jump across these and lastly, but not leastly (eh? Ed.) are the wells which slide open and shut — passing these takes not a little skill.

As you toddle around the castle you may find black holes in walls and green patches on the floor. These are doors. The green patches are doors in front of you, the black holes doors behind you. There are ladders to climb as well, which lead to upper floors. On one screen there is a piece of black screen which hides a door.

This game is a strange mixture of arcade adventure and laddrs and platforms which is a refreshing change. It has good graphics and gameplay but (though only one sound effect) but is a good buy for £2.99. What I want to know is why they called it Robo Knight!

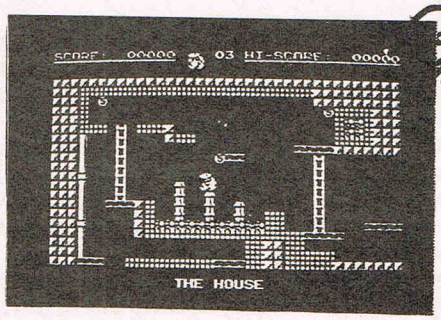
Price: £2.99
Graphics: ★★★
Sound: ★
Playability: ★★★
CCI Rating: CRISP

MEGA REVIEW

CCI Rating

MEGA C16

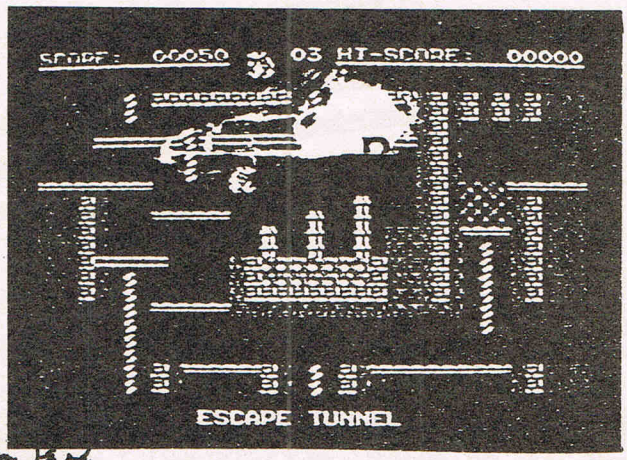
MONTY ON THE RUN



MONTY ON THE RUN

Super fit and desperate, Monty's on the run from Scudmore Prison. He's desperate for freedom and has to escape, he needs to bask in the sunlight once again. Can *you* help him? You *have* to help him Monty needs you!

This is the setting for Gremlins latest offering for the C16. It was a mega-hit on the 64 and speccy and is destined to go to the top of the C16 charts as well (unless Winter Events stops it).



It involves you, Monty Mole trying to escape to do this you must go through some thirty screens, collecting gold coins from each location to become a mole of leisure. There are secret passage ways is surprising places and you must go through places like the sewage works, (I wondered what that smell was) a tree stump and a house. The graphics in all locations are brilliant especially in the sewage works but the sound leaves a lot to be desired a dull thump of the pulverisers and a crash when you die.

A famous friend of mine (who shall remain nameless) actually prefered this version to the 64 one saying "even though it didn't have great music and loads of screens, it was more playable and not so frustrating — allowing you to explore the locations."

Nice one Gremlin how about an unofficial, cut down Gauntlet type game, I'm sure you could do it. Get out and grab this smash now!

COURTNEY KING SAYS "GET OUT AND GRAB THIS SMASH NOW!"

Price: £6.95
Graphics: ★★★★
Sound: ★ (shame)
Playability: ★★★★
CCI Rating: Mega

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MEGA REVIEW

CCI Rating C64

MEGA

Green Beret by Imagine

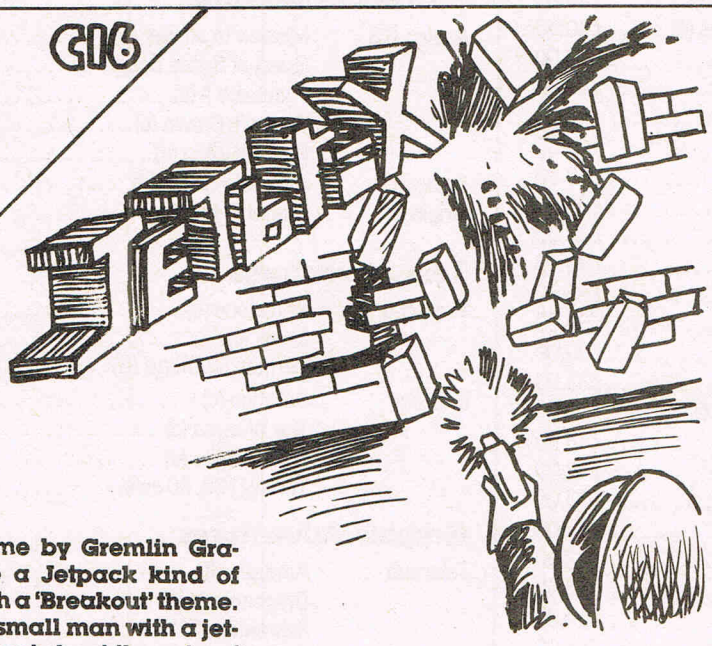
Rambo run! Commando make way! Here comes Green Beret, the hottest new war game for the 64. Green Beret is harder than Commando and more challenging than Rambo. You play the hero of the movie and your task is simple. Rescue your fellow Green Beret wearers who have been taken prisoner. You must battle your way through four hectic levels to achieve our goal, avoiding various guards such as commanders, bazooka men and ordinary soldiers of the blue, brown and green variety. All the above can easily be destroyed with just a little help from your trusty knife. More weapons can be obtained such as flamethrower and other pieces of lethal equipment when you manage a personal victory. For example, when you eliminate a commander you get a flamethrower.

Graphically, Green Beret is great with some smart touches, like during the use of a flamethrower. The characters are a little plain but the backdrops are highly detailed. Sound is also very good, with a constant drum beat during the game, various spot effects and a nice catchy tune at the title page. I enjoyed Green Beret a lot and found it surprisingly addictive. It's a very worth-while conversion from the arcade version. But do they have to go fighting Vietnam forever?

Price: £8.95
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★★
CCI Rating: MEGA

CCI Rating C16

CRISP



Jettrix

Yet another game by Gremlin Graphics, this time a Jetpack kind of game mixed with a 'Breakout' theme.

You control a small man with a jetpack and you must shoot the rain of falling bricks that threaten to build up or fall on your head. The object of the game is to break out of the cavern or last for a certain time limit.

Also falling with the bricks are spinners, which once caught can be dropped onto the bricks to eat them away, bombs, which eat the bottom layers of bricks that the spinners can't handle, and bonus circles, which just increase your score.

When you have made a gap in the bricks or your time has run out, you move into the next cavern where you start your frenzied activity all over again.

I have a *few* gripes about this game though, especially about your man, perhaps he could of been drawn a little better Gremlin? Maybe he shouldn't have been made to move so fast, eh? Isn't he a bit small? Not complaining you understand but...

Well anyway, apart from that, this game is good and though the graphics are boring and there are a variety of sounds which go well with the game. Gremlin, unlike most companies, use the C16's sound capabilities well, and it shows in games like this or 'Reach for the Sky.' Well done Gremlin, more please.

COURTNEY KING SAYS

"Well done Gremlin! More Please!"

Price: £6.95
Graphics: ★★
Sound: ★★★
Playability: ★★★
CCI Rating: Crisp

AND THEY CALL THEMSELVES ADULTS!!!

The times they've left you at home because 'you're not grown up' or 'not old enough to come to the pub' and look what they get up to when they get there! Here's your chance to find out what it's really like in those smoke filled haunts of adulthood. The opportunity to see how good you are at these ADULT?? games.
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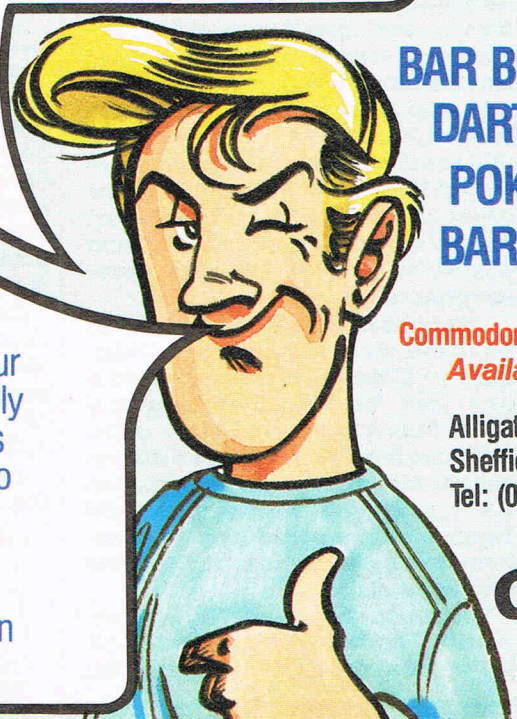

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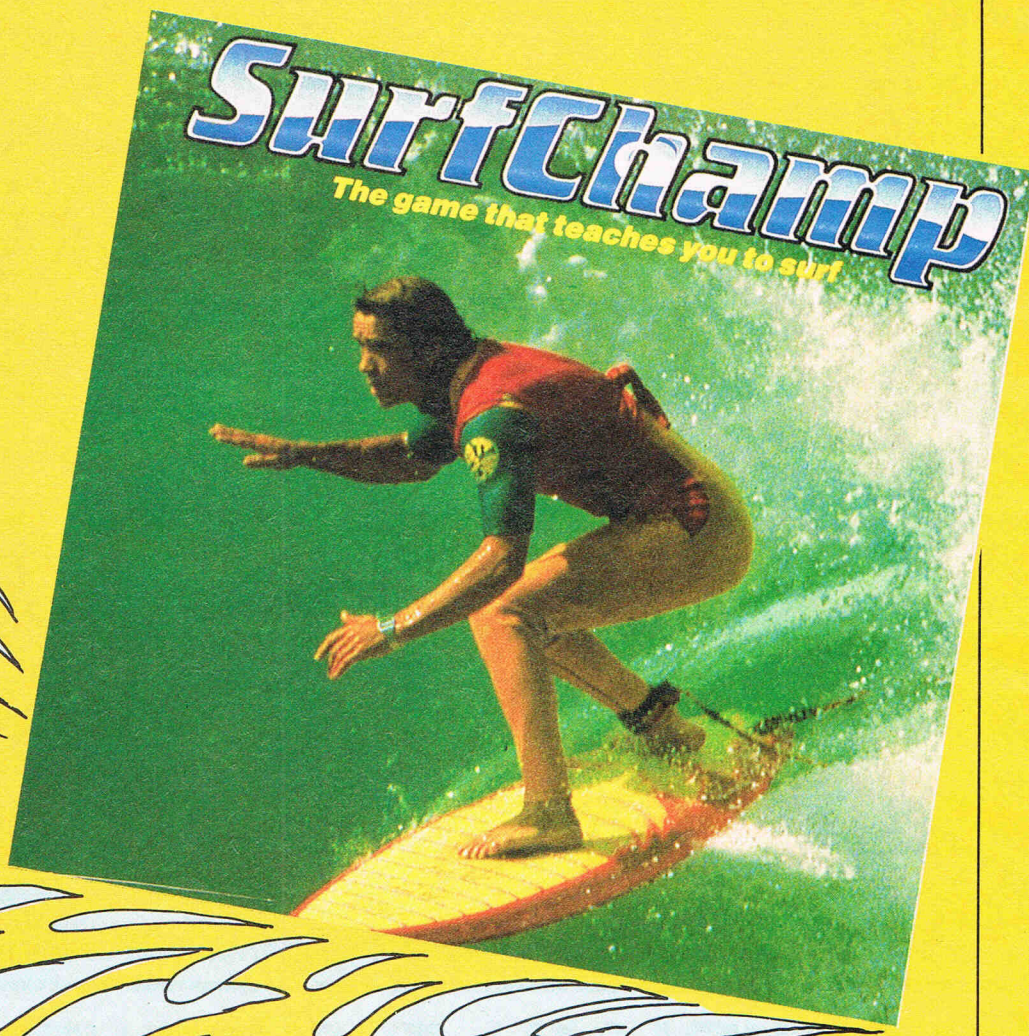
MEGA REVIEW

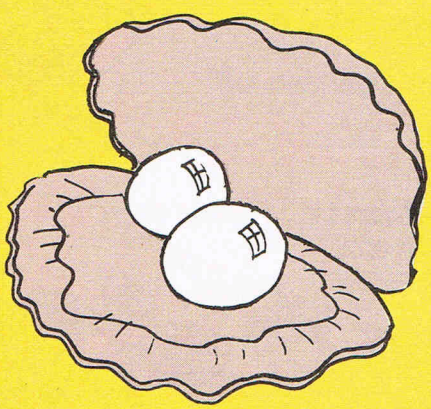
CCI Rating C64

CRISP



SURFCHAMP BY NEW CONCEPTS

Because no-one at CCI ever goes near water (for fear it will spoil the whisky – hic!) we asked famed Cornwallian surfer, Bob (Big Spume) Collyer to dive in at the reviewing deep end. Here's the pearls he came up with.



WATERPROOF YOUR 64 AND HANG TEN!

As a computer fanatic and also a surfing freak I was looking forward to reviewing this particular programe. It come from New Concepts Ltd., Ireland and claims to be the closest simulation to the sport you can get.

The package includes a miniature surfboard to clip onto your keyboard and it is this which controls your rides . . . just like the real thing! The game starts by asking for your personal details and choice of surfboard and also wetsuit, dependant upon water temperature.

After the wind and weather check, you stroll across Fistral Beach, Newquay in Cornwall. You then paddle your way through the rolling surf which rolls across the screen A quick turn and then you're up and riding, control then moves to the keyboard via the clip-on surfboard. Light touches on the board help you perform all kinds of tricks, just like the professionals!

Takes a lot to get used to, but well worth it. I found myself washed up on the rocks many times to begin with, but soon had the measure of the beast, surfing waves right up to the beach and performing incredible stunts. The more difficult, the more points.

The graphics are crisp, considering the subject matter, but the sound is non existent. This was most disappointing as maybe a Beach Boy soundtrack would have made this game more enjoyable. Perhaps New Concepts will note this and include music for their follow up programs planned for 1987, in which it will be possible to surf other spots around the world.

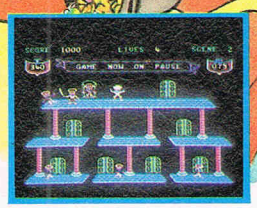
One nice point is another program on the reverse of the cassette which gives details of surfing history, language, manoeuvres, wave types and safety tips on the real aspect of surfing.

Contact New Concepts, Ireland Ltd., 37 Dublin St., Carlow, Ireland.

Price: £9.95
Graphics: ★ ★ ★
Sound: N/A
Playability: ★ ★ ★
CCI Rating: CRISP

THE LEGEND OF SINBAD

Scene 1 —
Escape from the dungeon



Scene 2 —
Battle with the guards

Scene 3 —
Protect your camels on the desert crossing

Scene 4 —
Flying carpets and giant Roc birds

Scene 5 —
The sultan transforms himself into a dragon

COMMODORE 64/128

THE LEGEND OF SINBAD for the Commodore 64/128

Game Author: Jason Benham.

Set in the golden age of Caliph Al-Rashid, you play the role of the brave adventurer Sinbad the Sailor. You have been kidnapped and thrown into the dungeon of Sultan Salabim's fortress. But, retrieving your plundered treasure, you escape from the dungeon by battling your way past the guards and vultures through the serpent-infested tunnels.

Once past the two dungeon gates, you stumble across a discarded sword. Just in time, because a second troop of fortress guards appear and a terrifying battle ensues.

Conquering the guards, you now head for home transporting your valuables on a caravan of camels across the scorching desert to Baghdad. Bravely, you defend the camels against the incessant attacks of the deadly beasts of the sand.

The Sultan Salabim, furious at your escape, orders his personal bodyguards aboard flying carpets and summons the giant Roc birds. Together, they form a cordon around Baghdad. Undaunted, you take to the skies, and the scene is set for a dramatic showdown high above the towers of the city.

The sultan has one remaining card to play. He can magically transform himself into a fire-breathing dragon spitting huge fireballs towards you.

Can Sinbad triumph in this titanic struggle?

Features include: 5 screens of action — each is a separate game in itself, 5 haunting tunes, beautiful graphics, impressive animation, and a ingenious password feature allowing you to skip screens which you have already completed once.

PRICE: £9.95 (cassette), £11.95 (disc).

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If you complete the game, you can enter our competition. The prizes include a beautiful carpet, a curved knife and a hand-carved wooden horseman (all genuine Arabian products), and £50 in consolation prizes.
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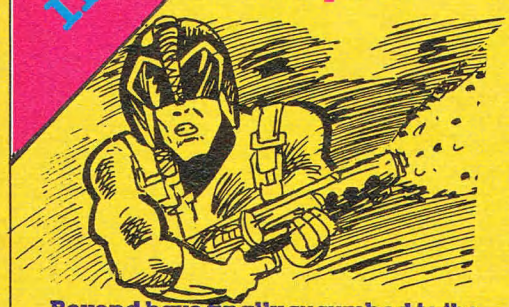
MEGA REVIEW

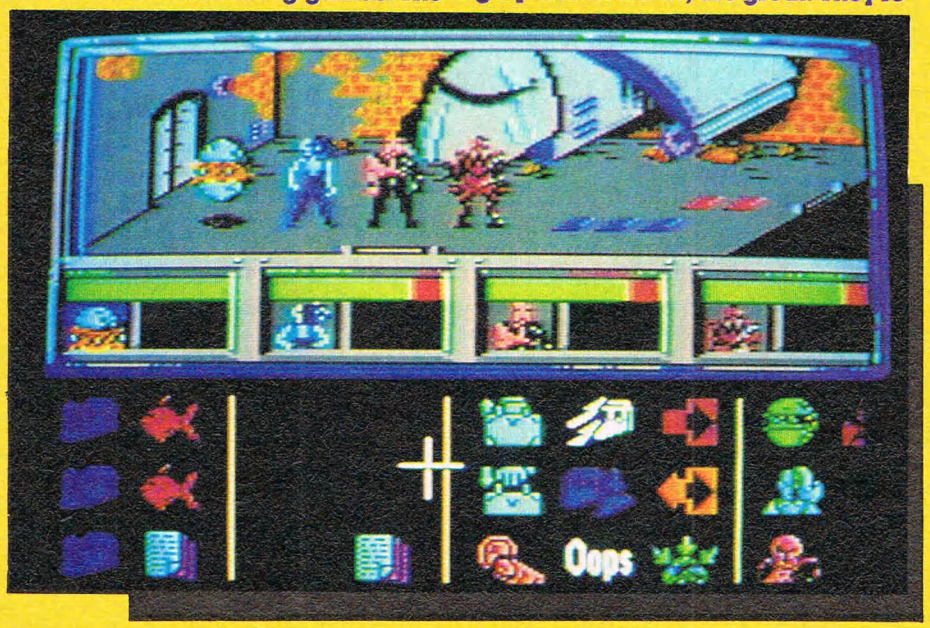
CCI Rating CI6

IFFY

Best of Beyond – Beyond



Beyond have finally sucumbed to the success of the compilation tapes. They've produced a compilation of four of their best selling games. The tape consists of *'Quake Minus One'*, *'PSI Warrior'*, *'Shadowfire'* and *'Enigma Force'*.



The RLF have sabotaged an underwater power station and it will shortly trigger a massive earthquake. The game begins on the day of sabotage thus *Quake Minus One. There are four other computers that you must capture or destroy. Although Quake Minus One* is at first, difficult once you've read the intructions thoroughly and had a few games it becomes considerably too easy.

If you've ever wanted to know what it's like to ride in a hovercraft then have a bash at *PSI Warrior*. You must guide your *PSI Warrior* through different levels of the home silo and eventually to the bottom to do battle with the source. I didn't like *PSI Warrior* all that much as there seemed very little going on. Graphics are a bit messy and the sound is mediocre.

Beyond have included the hit game *Shadowfire* in amongst the tape. I don't really know how people could like this game as I found it too hard to understand, even after dissecting the instructions line by line. Apparently an ambassador has plans for a new spaceship embedded in his spine. An evil character called Zoff has ambassadorknapped this guy with the plans in his spine and if Zoff discovers the plans he will be able to ravage any part of the universe. Your job is to rescue the ambassador, capture Zoff and destroy Zoff's starship. You can do these in any order, but I should think it helps to get the ambassador fellow out before you blow the place up!

All your inputs to the crew of the Shadowfire mission are done via on-screen icons. The instructions are long and tedious to understand. The graphics however, are great. They're clear and sharp and easily recognisable. Pity the rest of the game doesn't live up to them.

Enigma Force is Shadowfire II. It is supposed to be 'The all action sequel to Shadowfire'. I did like *'Enigma Force'* better than Shadowfire 'cause it's easier (You're supposed to be a bright reviewer. Whatever happened to you? Ed) You can actually move your chosen person around the playing area.

After you'd captured Zoff in Shadowfire, you were bringing him back to see the emperor. Before he left, Zoff declared war on the Empire. As you crossed the imperial border, Zoff used his psionic powers and made your ship crash into a planet. When you wake up . . . Zoff's gone. Oh no here we go again!! The plant you've crashed into happens to be one of your crew's home planet, Syylk, who is second command. Syylk's people, the Insectoids are fighting with Zoff's loyal followers, the Reptiloid stormtroopers. Your recommended course of action is a) Find the Insectoid leader and convert him to an ally b) Find a spaceworthy ship in which to escape from the plant in and c) re-capture Zoff.

Commands are again issued through icons on screen. All Beyond games are difficult but this is the hardest yet. Graphics are very similar to those of Shadowfire, but they are still good.

These Beyond games seem to be designed with the idea that a game that's really hard to play is what's needed. What's really a good game is one that let's you acquire a skill and still staying ahead of you keeping you on the edge of a cliff of excitement. I think these games, except for *'Enigma Force'*, which I enjoyed, push you over the cliff of 'difficulty'. Not really a comfortable experience.

Price: £9.95
Graphics ★★★
Sound ★★
Playability ★★
CCI Rating: IFFY

TOP TWENTY

C64

	GAME TITLE	COMPANY		Price (£)	RATING
1	Super Cycle	US Gold	★	9.95	T.B.A.
2	Parallax	Ocean	★	8.95	Awesome
3	Hollywood or Bust	Mastertronix	★	1.99	T.B.A
4	Miami Vice	Ocean	★	8.95	IFFY
5	Knight Rider	Ocean	★	8.95	T.B.A.
6	Ghosts & Goblins	Elite	↑	9.95	Awesome
7	Speed King	Mastertronix	↑	1.99	Crisp
8	Strike Force Harrier	Mirrorsoft	★	9.95	T.B.A.
9	WAR	Martech		8.95	Crisp
10	Dan Dare	Virgin	★	9.95	T.B.A.

C16

	GAME TITLE	COMPANY		Price (£)	RATING
1	Monty on the Run	Gremlin	★	6.95	T.B.A
2	Speed King	Mastertronix	↑	1.99	Crisp
3	Kickstart	Mastertronix	★	1.99	T.B.A.
4	Fingers Malone	Mastertronix	↑	1.99	Crisp
5	One Man & his Droid	Mastertronix	↑	1.99	T.B.A.
6	Yie Ar Kung Fu	Imagine	↑	7.95	Crisp
7	Torpedo Alley	Firebird	★	1.99	T.B.A.
8	Matrix/Laser Zone	Llamasoft	★	6.95	T.B.A.
9	European Games	Tynesoft	★	6.95	T.B.A.
10	Commando	Elite	↑	7.95	T.B.A.

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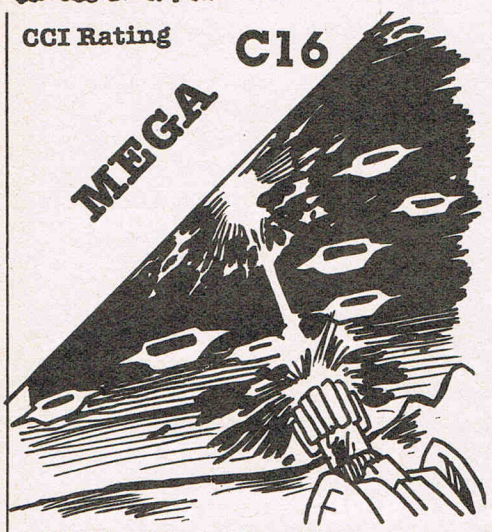
MEGA REVIEW

CCI Rating



C16's Classics II

As the title suggests this is the second compliation of so called Classics put together by Gremlin Graphics. It consists of a solar software game, Monkey Magic, one by Alligata Software called Blagger, English Software's brilliant Timeslip and Gremlins awful Xargons Revenge.

I'll start with the worst game and work my way upward to the best, that way I can get the rubbish out of the way quickly.

The first, and definitely the worst is Xargons Revenge. Ironically this is by Gremlin, the people who put the compilation together. After beating the Xargon warriors in Xargon Wars you decide to wipe them all out on their planet, but someone told them and their lying in wait for you. The game is set out like a horizontal space invaders, with you stuck at one end while hoards of enemies swarm from the other end. This may sound like a good game but with your movement limited to up and down incredibly boring gameplay and NO sound this game is useless. I don't know why Gremlin put it on the tape. Their games are usually great.

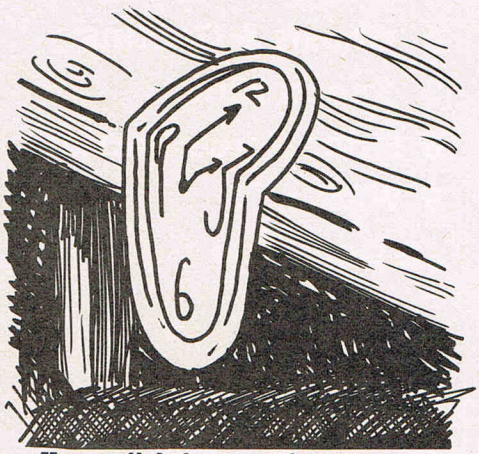
The next game on my list, Monkey Magic. You are on the quest for the Holy Scriptures and you travel along on your cloud above a scrolling background of mountains. As you fly, a squad of flying insects start attacking you and your only option is to kill them.

This happens over and over again for I don't know *how* long. Sounds boring? Well it does get a little boring but it has good graphics and is presented well. Not a bad little game and a worthy addition to the tape.

The next game is one that should be familiar to most C16 owners as it was one of the first games released for our computer, Blagger. To any of you not familiar with this I'll give you a rundown of its theme.

You play Roger the Dodger (where have I heard that name before?) master burglar and you have to work your way through twenty rooms, collecting keys in each one to open the safes. Out to stop you are some really wierd guards. Take the mouth that would love to eat you or the rose bushes that kill you with one touch of their prickly thorns (just like my garden. Ed.). As if this weren't enough your air is running out and if it happens to run right out, yes you've guessed it, you die. Each screen requires a little thought to crack and will provide a lot of satisfaction when you do. Two small problems are the graphics (a little crude) and the speed (very slow) but this is one of the first and still one of the best platform games ever for the C16.

Now I come to the penultimate game in C16's Classics, Timeslip. It's a kind of scramble game with three parts to it — all on one screen! Your job is to destroy the time orbs and synchronize time in all three parts to save the planet from destruction. The first part is on the planet surface in a starfighter, with ground based missiles, cannons and other offensive weapons to contend with. In the second part you have to jet through underground caverns, armed with a laser, taking out the orbs as you go. The third and final part is in a sub, as you torpedo the orbs and octopus' in your way.



You switch to any of the parts at will, enabling you to master each of them before trying the real thing.

This is a great game with stunning graphics and good sound. The other games are good as well (except Xargons Revenge) making this compilation really excellent value. Another plus is that all these games are fast loaders. Buy it!

Price: £9.95
Graphics: ★★★★★
Sound: ★★★
Playability: ★★★★
CCI Rating: MEGA

GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK · GRIP STICK

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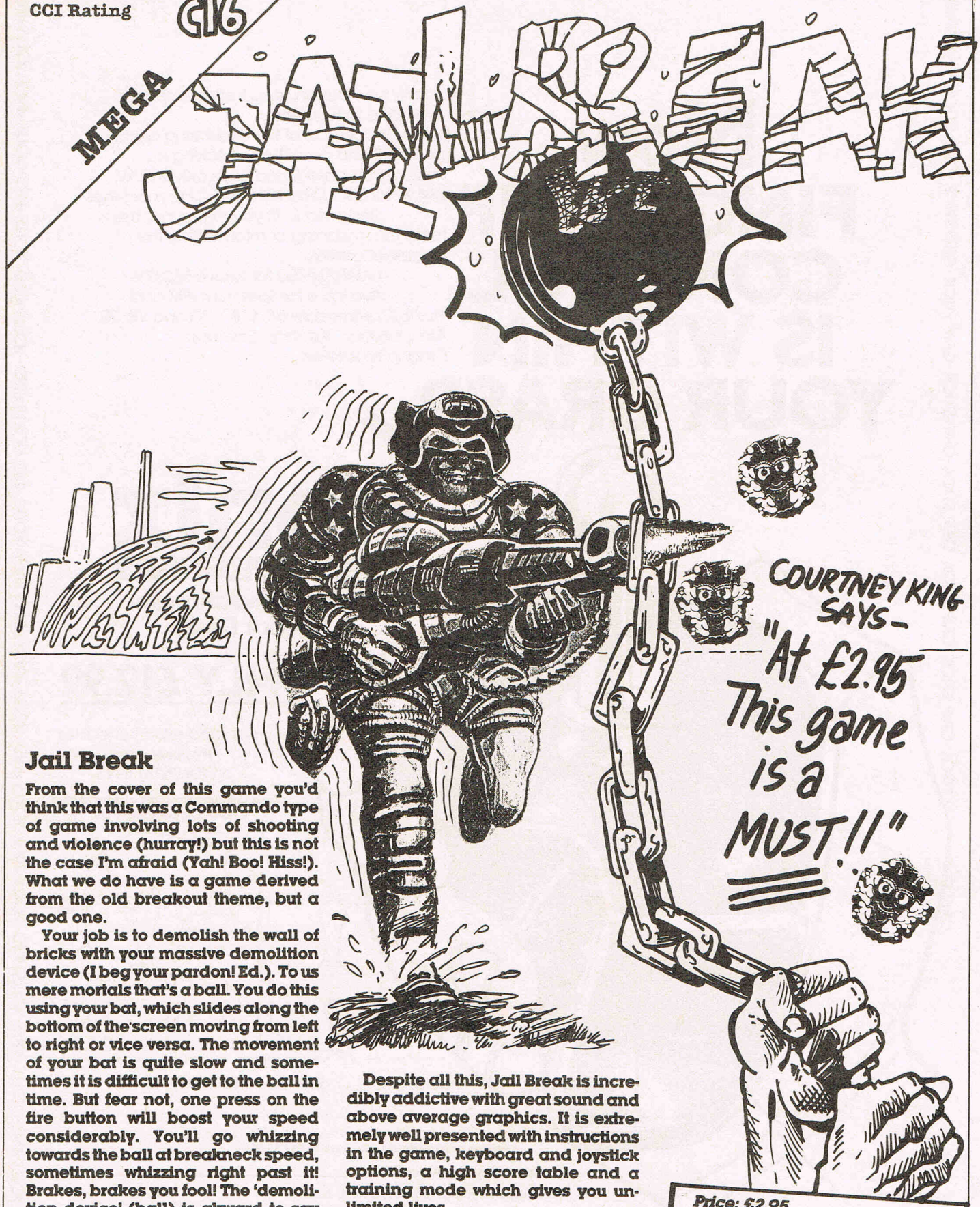
MEGA REVIEW

CCI Rating

C16

MEGA

JAIL BREAK



Jail Break

From the cover of this game you'd think that this was a Commando type of game involving lots of shooting and violence (hurray!) but this is not the case I'm afraid (Yah! Boo! Hiss!). What we do have is a game derived from the old breakout theme, but a good one.

Your job is to demolish the wall of bricks with your massive demolition device (I beg your pardon! Ed.). To us mere mortals that's a ball. You do this using your bat, which slides along the bottom of the screen moving from left to right or vice versa. The movement of your bat is quite slow and sometimes it is difficult to get to the ball in time. But fear not, one press on the fire button will boost your speed considerably. You'll go whizzing towards the ball at breakneck speed, sometimes whizzing right past it! Brakes, brakes you fool! The 'demolition device' (ball) is akward to say the least, it bounces in every direction except the right one and sometimes rebounds against the wall and then goes exactly where you don't want it. (It's called not having a ball!)

Despite all this, Jail Break is incredibly addictive with great sound and above average graphics. It is extremely well presented with instructions in the game, keyboard and joystick options, a high score table and a training mode which gives you unlimited lives.

At £2.95 this game is a must. Another winner from Martin Ganon, programmer of Leaper (reviewed September CCI). Bugbyte is certainly putting it together these days.

Price: £2.95
Graphics: ★★★
Sound: ★★★★
Playability: ★★★★
CCI Rating: MEGA

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MEGA REVIEW

IRIDIS ALPHA

GUESS WHO WE GOT TO REVIEW THIS ?....
THE ONLY PERSON REALLY... THE MAN WHO WROTE IT ! THE GRAND LLAMA HIMSELF
JEFF MINTER !!

IRIDIS ALPHA

Iridis Alpha

IRIDIS is the latest Llamasoft shoot-'em-up and at first playing it may remind you of Sheep in Space. If you take the time to go deeper into the game however you will find that there's more to it than that . . . much more.

Perhaps I'd better make it clear from the start that this is no game for wimps, sissies or adventure freaks wanting a gentle introduction to the arcade scene. Learning to handle Gilby (the star of the show, a highly-manoeuvrable spiderish droid who just drips lasers) will take a good hour at least, so be prepared for some hassle at the start. Not that the game isn't tolerant of beginners; it is, at least for the first few waves. It's just that after wave two all hell breaks loose. Or so it seems . . .

The game starts out a lot like Defender. Your Gilby warps in, looking like a ballbearing with a pointy bit on the front end. You find that you can turn and in either direction over the scrolling and rather pastoral planet surface; you can even land and scuttle about; and when you press the FIRE button things get rather tough for the aliens. However, as you settle into this familiar setting and start to kick some serious ass, you soon find out that things ain't quite what they seem. For a start, as soon as the vapoursin' starts to get good you always blow up! What's going on?

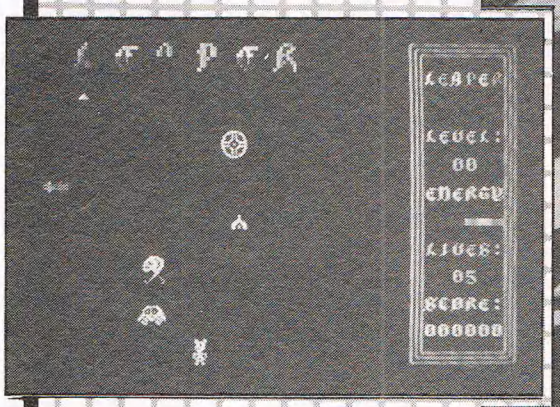
The answer lies in the fundamental theme underlying all of Iridis: energy. As you kill, so you gain energy, and if you overload yourself, bye bye Gilby. You have to drop off the energy by landing on the planet's Core.

Once you understand this, you get to wave 3 and the LickerShips, where you die horribly. Then you have a brief respite while the Progress chart shows you just what a pathetic dent the first three waves make in the totality of the game, then it's back to battle to find that now you have two planets and two Gilbies, but one is upside down and back to front . . .

Perhaps you're getting the idea that Iridis is a bit more than a mindless shoot-'em-up. Yeah. You gotta think. You have to learn to transfer, to keep an eye on your Entropy and Energy levels, and to hang around the Core like a pervert in a pissoir. The game expects a bit of effort on your part while you're learning, but rewards you with 200 levels of sheer heavy-metal galactic blood and thunder at six million miles an hour.

Beyond the main Iridis game there's a bonus game that you get into when the planet's Core is filled up. You have to traverse a vertically scrolling course while being hassled by a load of flying eyeballs. This section is a bit like pinball with no flippers and a jet-propelled ball, and it's worth doing well 'coz extra lives are to be had on completion. Iridis also has an unusual pause mode in that the pause mode is itself a game called MIF; MIF has a sub-pause-mode accessed by pressing the * key, a demo of a rotating double helix generated using 96 sprites, relaxing to watch after a heavy spot of alien hassle.

Basically, Iridis is a game for the Luke Skywalkers of the arcade game field. If you're not too confident of your joystick abilities you'll find it a tough challenge to match . . . but if you are one of the elite, if the Force is with you, then go for it!



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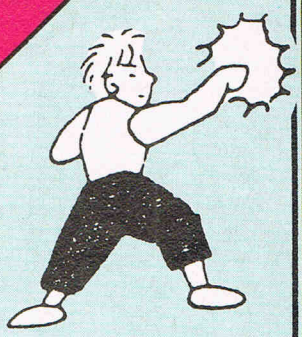
For mail-order and 'Byte-me' T-shirts (small, med, large: £3).

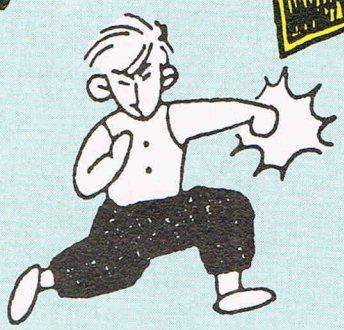
CCI Rating C16

CRISP



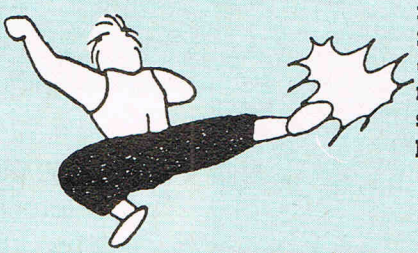
Hiya! Eeeargh! Ah so! Velly honorable gentleman at Imagine haf made conversion of sixty four chart topper Yie Ar Kung-Fu for humble C16 compluter! It involves you, Oolong, attempting to emulate your father and become a Kung-Fu Grand Master too.

YIE-AR KUNG FU



To do this you must fight, and beat, a variety of opponents (eight in all) all of whom have different fighting skills and weapons.

First for chop (ha ha very funny, Ed.) is Buchu, a fat man who hurls himself through the air at you and is good at high kicks to the head (Nice guy!). Second is Star who likes throwing shuriken (Chinese stars) at you. She's also a dab hand at kicking you where it hurts most — know what I mean! Thirdly, is Nuncha, a master of the Nunchaka. He doesn't actually use it. He just waves it in front of him to scare you. Fourth is Pole who (surprise, surprise) uses a pole to hurt you and advances on you spinning it around in his hands, held high in the air. All these battles take place in front of a mountain with a flowing waterfall. Now you must load up the next four from the tape and battle them in front of a pagoda. The going gets tough as you try to fight a chain wielding opponent, if you beat him



you must fight the mean looking Club who uses a shield and club to beat you senseless. Fan is next on the list, she uses her deadly Ninja fan to beat you (is a Ninja fan as deadly as a football fan? Ed.). Your final adversary is Sword who wields (yawn, let me guess) a sword. He's one mean son of a (censored) to beat.

At your disposal are six attacking moves; the ankle kick, lunge punch, high kick, rising kick, face punch and leg sweep. You can also jump, though only a pathetically short distance (I'm 200 kilos, what do you expect? Ed.).

The graphics are better than ever I thought they could be, though sound leaves a lot to be desired. It's also a mite too easy and you can get to Sword rather quickly. This doesn't detract from its playability but means that some might still be somewhat hungry when they complete it.

Price: £7.95
Graphics: ★★★★
Sound: ★★
Playability: ★★★
CCI Rating: CRISP (Very)

CCI Rating C16

CRISP

TOMB OF TARRABASH

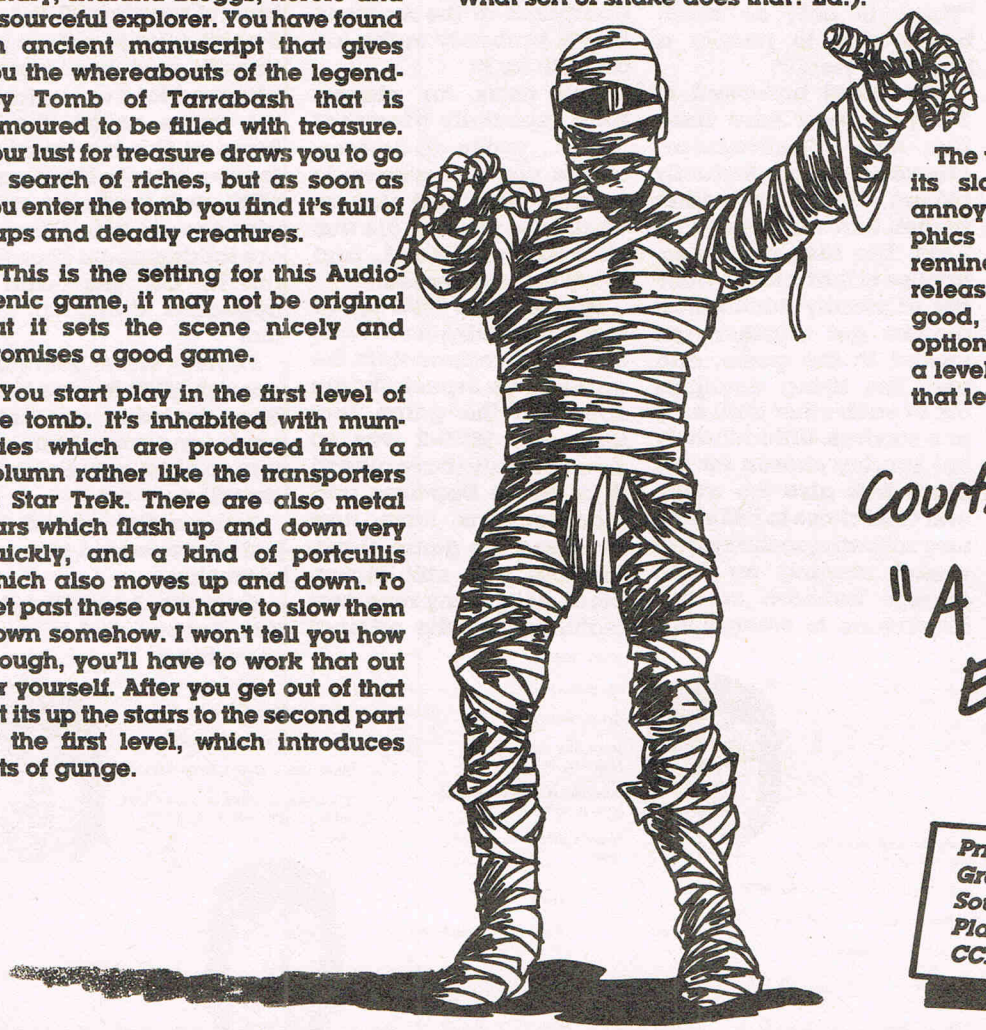
Tomb of Tarrabash by Audiogenic

You are an archaeologist extraordinary, Indiana Bloggs, heroic and resourceful explorer. You have found an ancient manuscript that gives you the whereabouts of the legendary Tomb of Tarrabash that is rumoured to be filled with treasure. Your lust for treasure draws you to go in search of riches, but as soon as you enter the tomb you find it's full of traps and deadly creatures.

This is the setting for this Audiogenic game, it may not be original but it sets the scene nicely and promises a good game.

You start play in the first level of the tomb. It's inhabited with mummies which are produced from a column rather like the transporters in Star Trek. There are also metal bars which flash up and down very quickly, and a kind of portcullis which also moves up and down. To get past these you have to slow them down somehow. I won't tell you how though, you'll have to work that out for yourself. After you get out of that bit its up the stairs to the second part of the first level, which introduces pits of gunge.

When you get to the second level instead of the mummies it's snakes you have to contend with. They fire at you a lot and it's wise to keep out of their way (Snakes fire at you? What sort of snake does that? Ed.).



The worst thing about this game is its slowness, which gets a little annoying sometimes. But the graphics are quite good and they remind me of Audiogenics other release this month, Leapin' Louis. A good, enjoyable game with a great option that allows you to complete a level and if you get killed, start at that level again.

Courtney King says

"A GOOD, ENJOYABLE GAME"

Price: £6.95
Graphics: ★★★
Sound: ★★★
Playability: ★★★
CCI Rating: CRISP

MUG page

MUD: By Kate the Arch-Witch and Frobozz the Wizard

Let us introduce ourselves, *Kate the Arch-Witch* (alias Margaret Lawton in 'real' life) is one of the longest playing people on Compunet MUD, having been on the system almost since it's launch, and is virtually part of MUD now, so 'distinctive' is her character and style. "I've seen a lot of players come and go, and made a lot of friends on the game.

Frobozz the Wizard (Alias Ken Farnen) is a wiz from Essex MUD, the original game that started the whole craze off.

We would like to reassure you, nothing nasty has been perpetrated on Zaphod, but because of his job with CCI he is getting less and less time to keep up to date with MUG goings on, and, like us, is suffering from an overdose of Compunet MUD politics (MUD politics is a dangerous and sometimes fatal disease, contracted by some MUGs as a result of going commercial).

Congratulations on Exodus finally making wizard, after many attempts! Poor Exodus found himself on the wrong side of more than a few wizards and witches, did I hear anyone say Plod and Lotus?), and so found himself getting killed off rather regularly. He finally had to resort to using the mode pedestrian name of 'Seldon' and playing at those odd little hours of the day when even most MUD players are tucked up in bed.

Congratulations also to Charesh, who seems to be incredibly lucky (or have friends in high places) Nearly all MUD players wish for piles of treasure to appear by magic before them, but a log of the last game Charesh played shows that's what really happened to him! All thanks to the Eagle-eyed wiz who spotted that one! We're told Charesh has since made it to wizard on his own merits, after his little windfall was deducted from his score!

Mud gossip has it that the two hack-and-slayers Smith and Jones, who, in true berserker spirit, appear and proceed to kill anything that moves, are in fact two usually nice and quiet wizzes (Fill in the stars ...Z★rc★n and B★l★n★r). I don't suppose you can blame them too much, as the author of MUD said "There is only so much being nice to people a body can stand"!

The great non-event of the year must have been the MUD Spectacular, organised single-Archedly (where WERE all you other arches that weekend?) by Kate. The idea of a spectacular is that a large number of usually docile MUD players get together, get locked in the game, and beat the living daylights out of each other until only one survives. Unfortunately the Sunday chosen for the event was also the weekend Cnet chose to test some new software, so the system wasn't running for long enough between crashes for anyone to emerge victorious! Anyway, all thanks to the wizzes who came along to help (and spectate) and to the mortals who put up with it!

Onto even stranger goings on with Lotus the-Arch witch... Since when was Lotus an Arch I hear you ask? Well, it appears that she fluttered her eyelashes at the newest Arch-wiz, Plod, and managed to extract his Arch password out of him! Peter (in the guise of Brian the Arch-Wizard) discovered this rather major bending of the MUD password security, and a great row ensued! Most people would (and have in the past) gained themselves some form of retribution for this (Look what they did to poor little Skweeky the mouse on Pr★st★l!), but such is the popularity of Lotus with Compunet at the moment, they'll probably make her an Arch for it!

Bad news for players (and especially Wizzes) at Essex... you're all novices, unless you've bothered to go and work your way up again! The persona file was cleared by Richard, and everyone was zeroed.

Speaking of MUD-2, the last few months have seen assive improvements in the game, and especially the speed of the game (not long ago MUD-2 was so slow you could have played it by post!) Bug-fixes and modifications have now rendered the game playable, but it is still incomplete, with many nice new features over the original MUD, but also many very basic things missing. However MUSE have drastically reduced the entry cost to the system. It now costs only £4.95 to sign up, versus £20 before, and is also presently charging time at half price. It's a shame though that all this time has made MUSE a bit paranoid and 'heavy-handed' on the instructions to attack certain reviewers on sight (in MUD I hasten to add!) for writing a bad review about the game! Considering the small amount of flak MUSE have actually been given for a product which is, let's face it, over a year late and still incomplete, they should be glad that many of the computer press used to play Essex MUD, and still public relations front. It's a hold it in awe!

Micronet abandoned the idea of running MUD-2 on Prestel (due to delays perhaps?) and has instead plumped for a very interesting game called Shades. More of Shades later, but for now, it looks like a good MUG, well worth the small pittance per hour Micronet are talking about charging for it! Oh yes, and it appeared dead on time too!

I think we have both slung enough MUD for one issue. Hope to bring you better news (and some hints and tips on MUG game playing styles!) next time!

Frobozz the wizard has just disappeared in a puff of Smoke!

Kate the Arch-Witch has just disappeared in a puff of perfume!

I've played MUD.

Great laugh, play a game and meet new people.

I'd recommend it.

Yeah, I'm still MUDding now and again.

Well, "again" is nearly every night.

I always feel a bit tired now.

But it's only a game.

Isn't it?

What? Huh?

Oh yeah, MUD.

Great, isn't it?

More like real life than real life, huh?

Why should I ever want to give it up?

Doesn't affect me in the least.

MUD!

Well, I can't really afford to play it.

And I can stop playing any time I want to.

But all my friends play it.

Yeah, I play MUD every night.

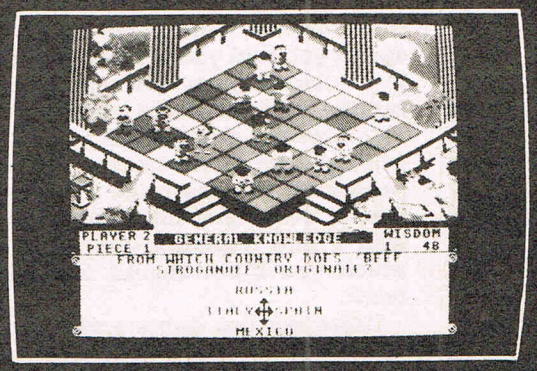
Doesn't mean I'm an addict.

Have you a fiver I could have?

I promise to spend it on my first meal in ages, not MUD credits.

Honest!

POWERPLAY
THE GAME OF THE GODS



The fantasy quiz game that transforms you and your opponents into mighty ancient gods. You control four great warriors fighting for your honour in the Temple of Apollo. Demonstrate your superior knowledge and they will transform into stronger beings – but you must master the use of 'mutations', 'teleports' and 'challengers' to emerge from the battle victorious!

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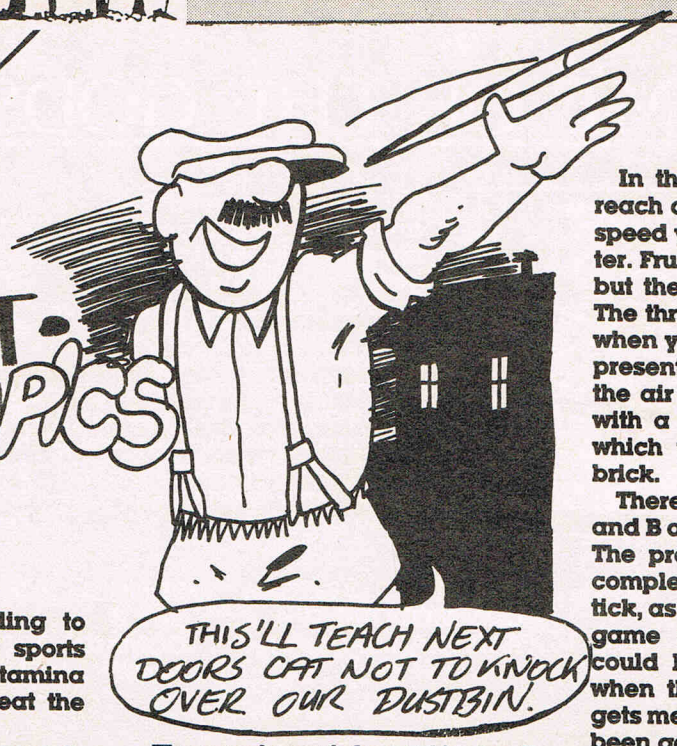
MEGA REVIEW

CCI Rating C16

NAFF

STREET OLYMPICS



Streets Olympics

Street Olypmics is , according to Mastertronic, 'an addictive sports simulation that needs great stamina and strength' so you can beat the records.

All this for one ninety-nine, sounds like a real steal! It couldn't be further from the truth. This must be the worst Mastertronic game I have ever seen for the C16, (Hey that rhymes!) I'm surprised that they had the guts to release it. And according to the charts its selling well. Some people will buy on names alone.

The events you take part in are: the two hundred metre sprint, (run a little distance) eight hundred metre job, (run a long distance) a long distance run combined with jumping over a series of walls, and a run combined with throwing a brick (throwing bricks is vandalism a street sport. Well yes I suppose it is, Ed).

In the running events, when you reach about a third of your possible speed you find you can't go any faster. Frustrating isn't the word for this but the one that is, is unprintable! The throwing event is just as stupid, when you let go the brick you aren't presented with the brick flying into the air but a silly little angle chart with a line depicting the angle at which you think should throw the brick.

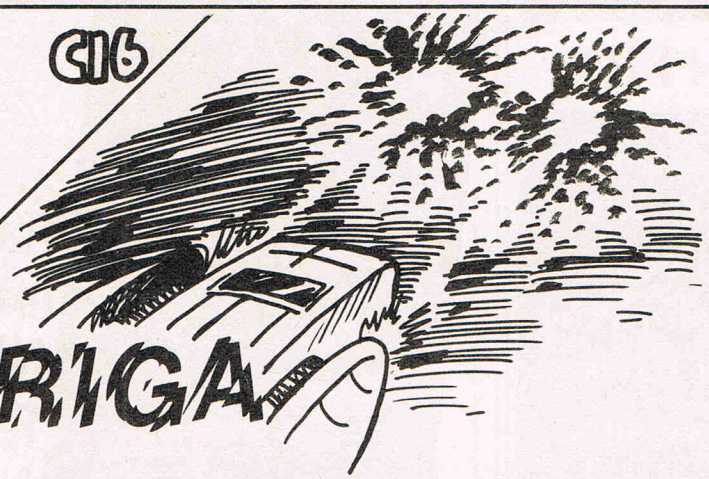
There are two game variations A and B and keyboard options as well. The problem is when you want to complete in all events with the joystick, as soon as you start running the game stops. Words fail me, how could Mastertronic not notice this when they tested the game? What gets me is that this game could have been good.

Price: £1.99
Graphics: ★★★
Sound: ★★★
Playability: ★
CCI Rating: NAFF

CCI Rating C16

IFFY

AURIGA



Auriga

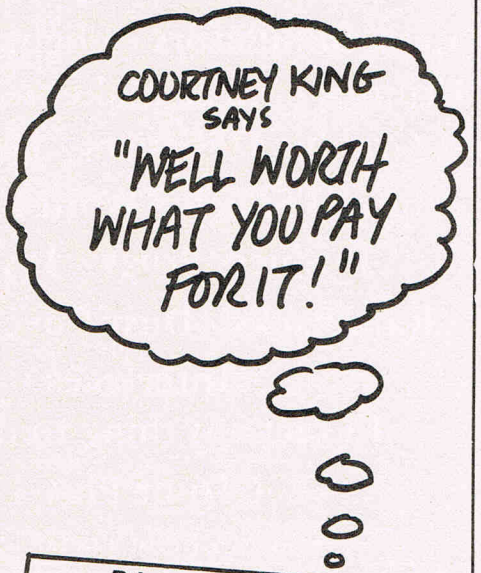
Players are yet another budget range company. With more and more low price quality games, things are looking up for the buying public who usually had to fork out eight quid or more.

This time you are a Star Fighter and you have to shoot sixteen waves of enemies. To do this you must travel to sixteen systems. If you complete this mission you will become a fighter pilot and get thrown into more fighting!

As you have most probably guessed this is 'just' another space invaders game with a jazzed up storyline. It also has a nifty (nifty? I haven't heard anyone use that word for ages, Ed.) picture on the inlay card that would make a great poster (hint, hint).

Playing the game is a hectic affair involving lots of shooting and aiming – let one ship get down too far and you're done for. They'll either drop quick little shots at you or crash into y ou. When you get killed your ship breaks into two and rushes along the bottom of the screen from side to side frenzidly then puts itself together again, ready to fight once more.

The graphics are quite good and the sound is, to say the least, loud. It is a very playable game but could get boring rather quickly. It is though, a budget game well worth what you pay for, if you like shoot 'em ups.



Price: £1.99
Graphics: ★★★
Sound: ★★
Playability: ★★
CCI Rating: IFFY.

THAI BOXING

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- See the cuts and the bruises on the faces of the boxers, as they kick and punch in this gruelling contest.
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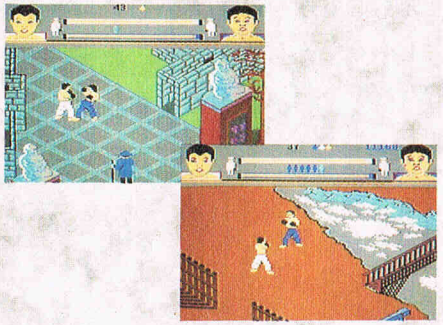

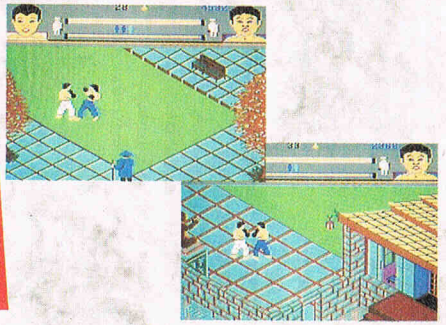

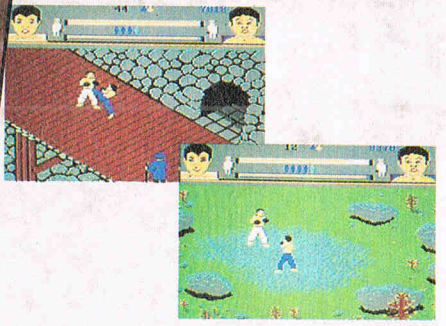

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MEGA REVIEW

CCI Rating C64

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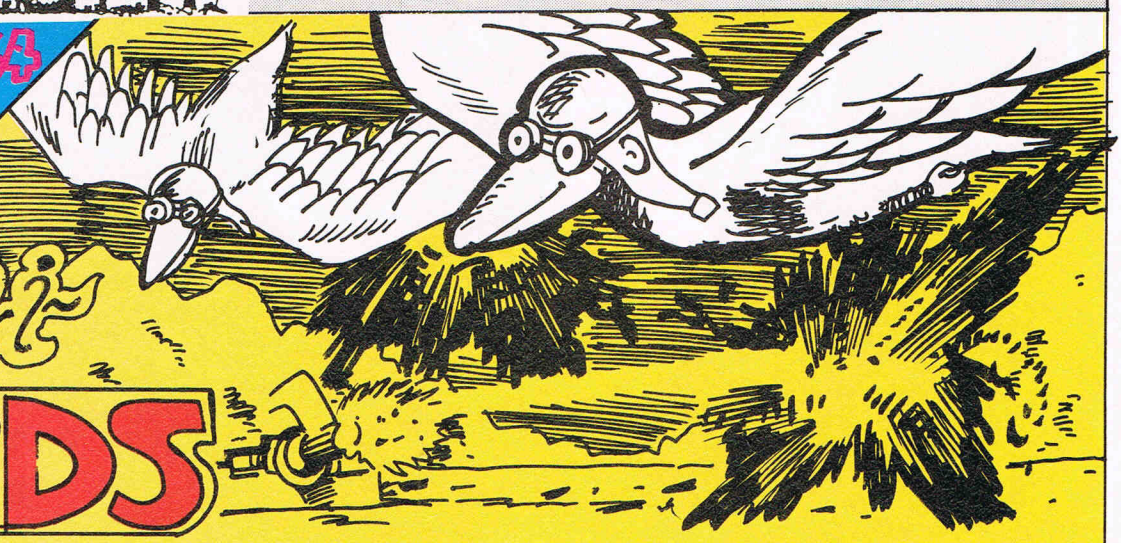


Galaxibirds — Firebird

Galaxibirds is a cross between Galaxians and Phoenix. Your task is, as per normal, to defend earth. You have your little spaceship and an unlimited supply of bullets to help you.

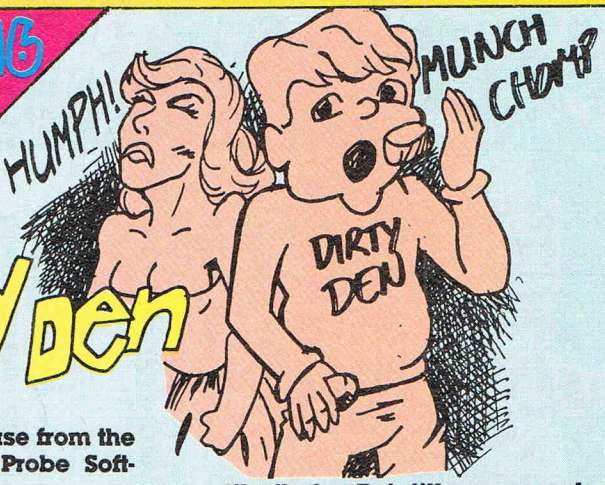
The first time I played Galaxibirds I didn't like it. I was screaming at it to slow down. How many games do you know of that are too fast? Here's a tip for Quickshot 2 users. Don't use autofire as this seems to make life harder. As soon as I turned autofire off I got further. Waves of various aliens, that you must destroy to move on, descend from the sky. It became really fun.

It's a nice try on the old theme of this kind of shoot 'em up game, and though at first very frustrating, it is also suprisingly addictive. The graphics are large and colourful and although the sound is quite primitive it works to good effect. It is very good value for money.

Price: £1.99
Graphics ★★★
Sound ★★
Playability ★★★
CCI Rating: Crisp

CCI Rating C16

IFFY



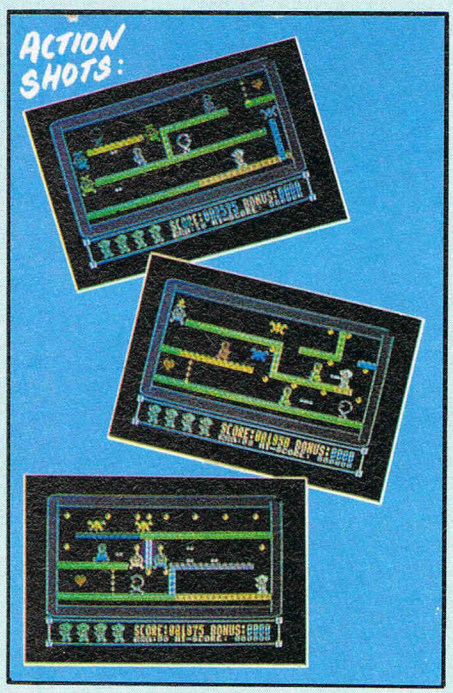
Dirty Den

Here's another C16 release from the little known company, Probe Software.

You control Dirty Den (why Dirty I don't know), who must rescue his princess from the clutches of 'the nasty old wizard', Nikita who has kidnapped, and hidden her within the maze of his castle grounds.

You, the valiant, and honourable Den, have to brave the maze with its creatures and monsters, to get to her chamber and finally free her. However, being a bit of a snob, the princess doesn't want to be rescued unless you bring her lots of chocolates, so quite apart from having to avoid being killed by some ghoul, you have to hazard your life going around picking up chocolates! I certainly wouldn't bother with a princess like that . . . But still some people I know might do *anything* to get close to the aristos.

With only 12k to write the program in, it is very difficult to produce stunning graphics, especially as we are talking about a C16, and not a 64 (which many reviewers seem to forget . . .). However, the graphics, mostly the software sprites, could have been improved I think, and a few more sound effects added. The game is very, very simple, and is the sort of thing that was appearing on the 64 when it was first launched. It does have a certain appeal if you like quick, easy to play/get into games, but otherwise loses its clutch on you after playing for a while.



Price: £6.95
Graphics: ★★★
Sound: ★★
Playability: ★★★
CCI Rating: IFFY

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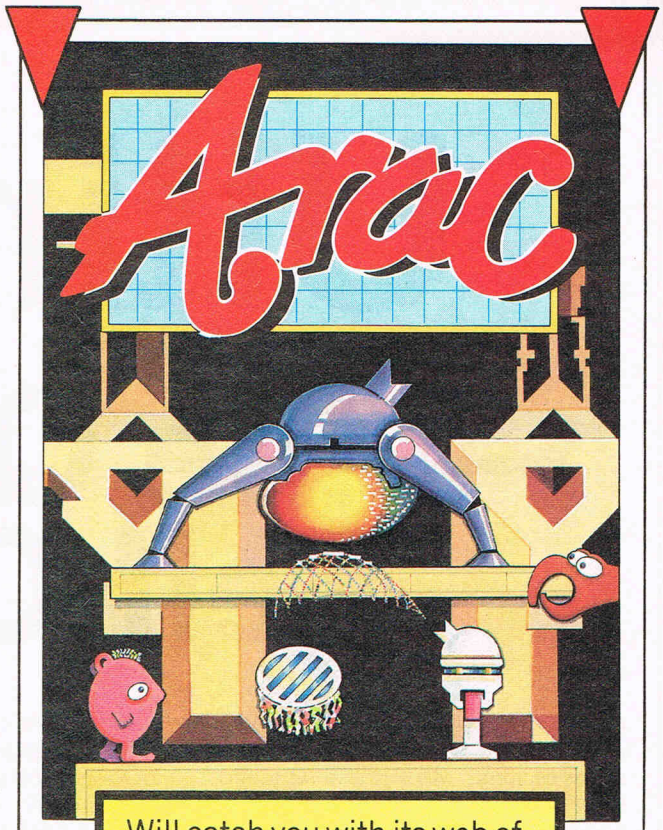

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Feature

Ultima IV — the Quest for Self Control!

Ultima . . . the very word sent shivers up and down the spine. It is an adventure series of mammoth size and reputation. Usually when I get a new adventure game, the first thing on the agenda is to step outside and bump off the characters in the immediate vicinity. Taking this approach in Ultima IV may gain you lots of treasure, but will get you nowhere in the game.

Ultima IV — The Quest of the Avatar is an impressive game. It comes on four sides of disks complete with map, player card and two booklets — one about the land of Britannia, and one about spells. The player disk is not copy protected, so you can copy it and run several alternative playfield realities concurrently.

On starting you are lead to a gypsy who determines your character type by asking you questions. I always ended up as a bard — I'm nearly tone deaf — until I had learnt enough of the game to know which answers would get the character I wanted!

Your character is then teleported to the land of Britannia. Your first task is to persuade others to join your party! You will eventually have eight people in your party — one of each character type — mage, bard, fighter, druid, tinker, paladin, ranger, and shepherd. Each type has its own innate virtue. Mages, for instance have the virtue of honesty. If you have been dishonest, and there is not shortage of opportunity to be dishonest, you will be unable to persuade a mage to join your party. You have to go away and make up for your dishonesty.

Your initial aim is to become an avatar — one who has been enlightened in all the eight virtues. After about 50 hours playing time I finally made it — only to discover that I was barely a third of the way through the game! Arrgghh! Now all I had to do was collect the eight stones, the skull, the wheel, the bell, the book and the candle, the three part key, find out the three syllables of the word of passage, and the one true axiom . . .

Ultima IV, like its predecessor III, takes a deal of time to complete. It is, however, a considerable improvement over Ultima III in several fields. In particular Lord British seems to have eliminated the boredom that set in a you collected cash to maximise your characters' attributes. The main screen display is similar to Ultima III — a window showing the status of your party, an input window, anda large window showing the action. The action window is constructed by modifying the C64 character set — truly awful! Somebody please tell Lord British that you are allowed to use the hi-res graphics and sprites in adventure as well as arcade games!

One of the key features of the game is talking to other characters — indeed it is almost impossible to get anywhere in the game without talking to characters. Ofte you will be told to ask someone else for information. You then have to go back to that person, because when you spoke last you didn't ask the right question! To get Nightshade (an essential ingredient of the KILL spell), for instance, you have to talk to five different people. People often ask you a question. Answer it honestly, they will remember what you said next time they meet you!

The monsters are a pretty impressive lot — and include hostile vegetables (reapers). There are 33 different types, and you may be attacked by parties which are composed of different types. The book about Britannia tells you which ones are evil. This is important — if you wantonly attack non-evil beasts (as opposed to fighting back when they attack you) it's bad karma, and the paladin will refuse to join you because you are not honourable.

When combat occurs the main window changes to depict the field of battle with your characters and the opposition shown individually. There is a wide variety of different battlefields, which makes strategy as well as brute force necessary. My advice is to arm your characters with missile weapons and dispose of the enemy before they get to you!

The dungeons are depicted as a 3-D maze. The opposition can be seen approaching (it gets bigger as it gets nearer!) until battle is joined. In dungeons the battle screen is a plan view of the room in which the battle takes place — complete with exits in case you've bitten off more than you can chew! Flee too often and the fighter will refuse to join you ('Thou art truly a wimp', he announced. Sigh . . .).

In spite of the crude graphics, though, the game is both addictive and very enjoyable. Many of the faults of previous games have been eliminated, but the problem of slow disk loading remains, courtesy of the 1541 disk drive. It is difficult to see how this could be resolved given the memory limitations. Fortunately, long disk accesses happen only when you enter dungeons, towns and castles.

If you want to cheat at the game there is a program on Compunet (GOTO MARK II) which lets you edit your characters up to max points and kit. It won't do you much good though — you still have to go and talk to people! The best advice I can give budding avatars is:

1) Note down the name of everyone you meet, and where you met them. This way you will be able to find them again!

2) Get hold of a sextant as soon as possible (ask a sailor if you can't find one). This will let you note the location of important places.

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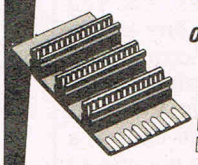

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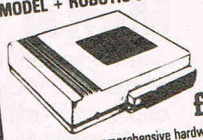

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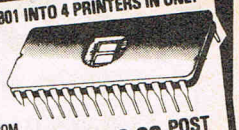

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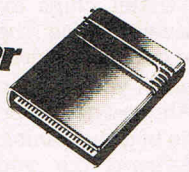

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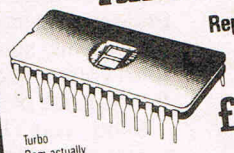

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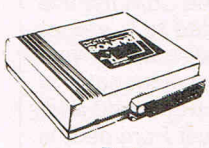

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Fighting Words

There are not many real stars in the computer world, but among them undoubtably glitters Jeff Minter, creator of innumerable smash-hit games We've given Jeff the freedom to say what he wants (libel laws permitting!)

You may not always agree with what he says, but he's certainly worth listening to. CCI won't always agree with what he says either, but we promise to print it anyway!

Minter speaks out

Back once again after having been on me hols to Corfu (very sunny ta very much). During the intervening time I have finished my new C64 game Iridis Alpha, with which I am well pleased; and been to the PCW show and seen a few interesting things of which more later.

Firstly, for anyone who bought Iridis and thought the instructions were a bit sparse, well yes they were, because somewhat half the instructions got lost before printing. In brief, the missing bits explained the following: In the Bonus phase the objective is to move up the course to the top as fast as possible avoiding and shooting the eyeballs; in the Pause mode (press F1 to enter) they keys N and M deflect the beam, you aim for the target before the timer runs out. To access DNA press *.

While I was at the PCW show I had my first look at the new Commodore 64, the 64C. What Commodore have done is taken the old C64 (you know, the one with the crummy Basic, slow disk drive and the tape system so slow that without a turbo loader you'd be better off leaving the tape near the computer and waiting for the data to load by osmosis) and given it a new case, and . . . that's all. Oh, and they increased the price. No new Basic, no built-in tape turbos or disk speedups; just your old clonky '64 in a Starship Enterprise case. Bit of an own-goal by Commodore I reckon.

If they really wanted a decent succesor, they should at least have had an enhanced BASIC with tape and disk turbos, maybe leaving the old BASIC in there somehwere for compatibility's sake. Oh, you get something called GEOS but that's just a shell around the same old stuff, it's slow, useless for copying disks if you only got one drive, and you need to boot it off disk in the first place, it's not ROMmed. I'd have liked to see a VIC-3 chip developed, too, similar to VIC-2 but with the colour capabilities of the C16/Plus 4 machines, but I suppose that really is asking too much. So you get your clonky '64 in the Starship Enterprise case and that's it.

Yes, and while I'm getting depressed about Commodore getting it wrong, I see that the Amiga hasn't dropped in price at all. Still as expensive as it ever ws . . . and Atari are catching up: at the Show I found out that ST owners can expect to be buying Blitter chips for their machines in a few weeks' time. The Blitter is that part of the Amiga that gives its graphics such speed. If you have an Atari you can bolt on Amiga-type speed for the price of a couple of good games.

Mind you, I have heard the odd rumour that Commodore may be going to offer a repackaged Amiga for 5-600 odd. If they do that then they will earn my undying loyalty for every. If they do that I shall have a party. If they do that, maybe they won't go bust. Then, everyone can play Marble Madness.

Marble Madness on the Amiga is an experience everyone should have at least six times a day. The graphics are identical to the arcade version, although the animation gets a little jerky in the two-player mode when there's a lot happening onscreen, probably by dint of the fact that the program's written in 90 percent C. Nonetheless, the game can't be knocked, because it is so damn near arcade perfect to play. Shame that there was no hiscore table or last score display though. But still brilliant and compulsory purchase for all Amiga owners. Both of them.

Anyway, why do you want an Amiga? Are you going to go in there and use all that wonderful technology yourself, or are you just drooling at the thought of all the brilliant games you could get to play on it? After all, the Amiga was designed as a game system but that changed with the death of the dedicated game machines and the birth of the Age of the Micro . . .

Well I've got news for you . . . the Return of the Game Systems is about to happen, and it'll blow your brains out and your joysticks up. How about a system for playing games that offers the best games potential of any micro this side of the Amiga, with 256 colours, 256 (count 'em) sprites, the most amazing hardware smooth scroll you ever clapped eyes on, and arcade conversions just like the originals? Sounds good, huh? But must be expensive, ok?

Such a system is the new Sega game machine, and you get all that power for just eighty quid. Nintendo got one coming out soon, too. The game carts are about the same price as disk software is now, and they're instant, and permanent. And they can't be pirated (which is good news for us software developers, and for you took, 'coz you don't have to worry about any stupid security codes or dongles and suchlike).

I'm not implying that we all abandon our trusty Commodores and just go back to joystick twitching full-time on a dedicated system; of course not. We all use our computers for other things than games (don't we?) and the chances are that we'll want to have micros for programming, wordprocessing, and messing about with music and graphics and whatever else we're into; but we all love playing arcade games, and rather than force our poor Commodore to perform unnatural acts with more than 8 sprites at once in order to make it run an arcade game, why not use a system that was designed to do such stuff ten times better than the C64 ever could? Especially if the thing only costs eighty quid.

I reckon we may be in for a bit of a split in the software field. Arcade game writers would do better programming for the game systems, whereas creative stuff like music programs and Adventure Construction Kits and Colourspace are obviously more suited to a proper micro. Anyway, we shall have to wait and see. I reckon that a lot of the sales of Commodores and Spectrums and a lot of low-end micros are just from people wanting a system to play games on, and with the advent of these new cheap game supersystems the 8-bit low-end market will quietly die and those who are really into computers to a stage beyond gameplaying, the enthusiasts and programmers, will move on up to mid-range 16-bit systems like the Atari ST and the (please God let the rumours of a cheap version be true) Amiga.

Me, I intend to write stuff for both halves of the new market. I'm looking forward to doing some games for the new game systems (like REALLY looking forward . . . think of all those SPRITES . . . more moveable objects than the human mind can comfortably comprehend . . . think of the number of bullets you could have! the aliens! the EXPLOSIONS!!!) but I'm still going to be using proper micros for stuff like Colourspace (which needs special controllers like mice and graphix tablets, huge bitmaps, lots of keyboard commands and a certain amount of enthusiasm from the operator).

Of course, I may be totally wrong, and maybe the game systems will flop. Time and Boots' till receipts will tell. Wait till you've seen these upstart game systems before you block up the Commodore's joystick ports and flog your illicit disk collection of six million cracked chart-toppers . . .

Right, you've had your lot for this month. I'm off to play Astro Warrior on me Sega.

Evesham Micros

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"Freeze Frame" is **simplicity itself** to use. It is cartridge based so is simply plugged into the cartridge port. When the computer is switched on a message is displayed, pressing "RETURN" will clear the computer back to the normal start up screen. Software can now be loaded from tape or disc **completely as normal.** The latest version of "Freeze Frame" will, to the best of our knowledge, allow **ANY software** to load and run normally (unlike competitive products).

"Freeze Frame" can be brought into operation at any convenient point by **pressing the button** on it. You can then do one of three things:—

1. **Pressing "D" will save a working version of the program in memory to a formatted disc. This version will include an auto booting very high speed reload (many programs reload in less than 30 secs).**
2. **Pressing "S" will save to disc with a standard reload speed that can be used by non 1541/70/71 drives U.S. spec. machines, etc., but perhaps more importantly by most fast load cartridges and systems. Use "Dolphin DOS" to reload anything in less than 10 secs. (Also suitable for U.S. spec. machines.)**
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IT'S AS SIMPLE AS THAT

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Owners of earlier versions can return them and upgrade for £14.95.

SERIOUS WARNING: THIS IS AN EXTREMELY POWERFUL PRODUCT AND IS STRICTLY FOR PERSONAL USE. DON'T COMPARE IT WITH ANY OTHER PRODUCT, NOTHING ELSE OFFERS THE POWER OF "FREEZE FRAME".

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Like everyone that has had the pleasure of seeing this system in operation you will be amazed by both the speed and ease of use. It is compatible with the majority of commercial software, speeding up both the program loading and SEQ/REL files. Fitting requires the insertion of two sub assembly boards, one in the 1541 and one in the '64/'128. This does not normally entail soldering, although a small amount will be necessary with some machines.

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Operates with the CBM 64 or 128 in '64 mode with 1541 disc drive.

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CP/M + the 128 Part II

System cold start

The cold start procedure is executed immediately after the computer is turned on, or the Reset button pressed. The cold start brings CP/M into memory and gives it control of the C128's resources. This is a four stage process. The first three stages are performed with Bank0 in context.

The C128 reset routine is situated in the Z80 ROM. The Z80 is put in control when the system is reset or switched on. The Z80 first checks for a C64 cartridge. If no cartridge is present and the CBM key is not pressed (forces C64 mode), then control is passed to the 8502 and the system attempts to boot from the disk drive with address 8. If such a disk drive is connected and switched on, the BOOT sector, Track 1 Sector 0, is read into memory and checked for the Boot code. Assuming that this occurs, and that the CP/M system disk is in the drive, then control is passed to the Cold Boot Loader which was loaded in from the boot sector. This is the first stage of the process.

The Cold Boot Loader enables the Z80 processor and passes control to the CP/M Loader routine, CPMLDR, in the Z80 ROM. This completes the second stage.

CPMLDR performs the third stage in the cold start process. First, it reads the CPM+.SYS file from the disk. (Note that unlike other CP/M disks, CBM disks do not have a system area and a data area. There are no system tracks, since the CPMLDR is in ROM.) The CP/M+.SYS file contains the BDOS and BIOS system modules and their locations in memory. Once CMPLDR has loaded the BDOS and BIOS into memory, it sends a sign-on message to the screen and passes control to the BIOS Cold Boot entry point.

The fourth and last stage is done by the BIOS Cold Start function, Function 0. This initializes Page 0. The fourth stage is completed when the BIOS Cold Start Function loads the CCP from the file CCP.COM into memory. The CCP is loaded into the TPA which is in Bank1, and Bank0 so that warm start operations can copy the CCP into the TPA from memory. This speeds up the system warm start operation, since the system can warm start without loading the CCP from disk. Since the CCP loads into and executes in the TPA at $0100, Bank1 is put in context at this point. Control is then passed to the CCP.

The CCP displays the prompt for the default drive, drive A. If a PROFILE.SUB file is present on the default drive, the CCP executes this submit file before prompting the user for a command. The user number is set to zero, unless changed by the PROFILE submit file. This completes the cold start.

Communication between modules

When the system cold or warm starts, the BIOS loads the CCP into the TPA. The CCP moves the Program Loader Module (PLM) to the top of the TPA and uses the PLM to load transient programs.

The BDOS contains a set of 32 functions that the CCP and applications programs call to perform disk and character input and output operations. A list of the functions carried out by the BDOS is in Table B.

Similarly, the BIOS contains a set of 33 functions that are called by the BDOS to perform hardware-dependent primitive functions, such as peripheral device I/O.

When a call is made to the BDOS, the BDOS makes calls to the BIOS to carry out the function required. This can mean many BIOS calls for one BDOS call.

Communication between the BIOS, CCP, and BDOS is via a 100 byte area of memory within the BDOS called the System Control Block (SCB). The SCB contains BDOS flags and data, CCP flags and data, and other system information, such as keyboard and display characteristics and the current date and time. Some of the SCB fields may be accessed via the BIOS. (NB: the SCB contains critical system parameters. If a program modifies these parameters, the operating system can crash. Use caution here!) See BDOS Function 49 in the documentation for further information.

Communication between transient programs and the operating system is via Page Zero. Page Zero also contains critical system parameters, including the entry to the BDOS and the entry to the BIOS Warm BOOT routine. At system start-up, the BIOS initializes these two entry points in Page Zero. All linkage between transient programs and the BDOS is restricted to the indirect linkage through Page Zero.

Table 1 Currently available software.

NAME	FROM	REMARKS	APPROX COST (UK Prices)
WORDSTAR	Micropro	Wordprocessor	£129.99
SPELLSTAR	Micropro	For WORDSTAR	£86.99
MAIL MERGE	Micropro	For WORDSTAR	£86.99
RETRIEVE	Sagesoft	Database	£59.99
dBASE II	Ashton Tate	Database	£119.00
CARDBOX	Caxton Software	Simple database	£124.99
SUPERCALC	Sorcim	Spreadsheet	£99.99
MULTIPAN	Microsoft	Spreadsheet	£129.99
POPULAR series:	Sagesoft		
NOMINAL LEGER	Accounting leger	£99.99	
INVOICING		Stock control	£69.99
PAYROLL		inc. SSP and P45	£69.99
ACCOUNTS+		First two above	£149.99
COMBO		First and third above	£149.99
SUPER COMBO		The lot	£199.99
UTILITIES	Commodore	CP/M disk & documentation	£24.99
DEVPAC 80	Hisoft	Assembler development	£39.95
PASCAL 80	Hisoft	Pascal compiler	£39.95
C++	Hisoft	'C' compiler	£39.95
CIS-COBOL	Microfocus	COBOL compiler	£129.99
ANIMATOR	Microfocus	Debugging tool	£129.99
MACRO 80	Microsoft	Standard assembler/linker	£129.99
PROFORTRAN	Prospero	FORTRAN 66	£129.99
PROPASCAL	Prospero	Except conformat arrays	£129.99
ECO-C	Ecosoft	'C' compiler	£169.99

Table 2 Resident commands.

COMMAND	FUNCTION
DIR	Displays filenames of all files in the directory except those marked with the SYS attribute.
DIRSYS	Displays filenames of files marked with the SYS (system) attribute in the directory.
ERASE	Erases a filename from the disk directory and releases the storage space occupied by the file.
RENAME	Renames a disk file.
TYPE	Displays contents of an ASCII (TEXT) file at the screen.
USER	Changes to a different user number.

Table 3 Transient commands supplied.

COMMAND	FUNCTION
DATE	Sets or displays the date and time.
DEVICE	Assigns logical CP/M devices to one or more physical devices, changes device driver protocol and baud rates, or sets consoles screen size.
DUMP	Displays a file in ASCII and hexadecimal format.
ED	Creates and alters character files.
FORMAT	Creates a new boot disk.
GET	Temporarily gets console input from a disk file rather than the keyboard.
HELP	Displays information on how to use CP/M commands.
INITDIR	Initializes a disk directory to allow time and date stamping.
PIP	Copies files and combines files.
PUT	Temporarily directs printer or console output to a disk file.
SET	Sets file options including disk labels, file attributes, type of time and date stamping, and password protection.
SETDEF	Sets system options including the drive search chain.
SHOW	Displays disk and drive statistics.
SUBMIT	Automatically executes multiple commands.

Table 4 Transient commands on the Utilities disk.

COMMAND	FUNCTION
HEXCOM	Uses the output from MAC to produce a program file.
LINK	Links REL (relocateable) program modules produced by RMAC (relocatable macro assembler) and produces program files.
MAC	Translates assembly language programs into machine code form.
RMAC	Translates assembly language programs into relocatable program modules.

SID	Helps you check your programs and interactively correct programming errors.
XREF	Produces a cross-reference list of variables used in an assembler program.

Table 5 Reserved Filetypes.

FILETYPE	MEANING
ASM	Assembler source file
BAS	BASIC source file
COM	Z80 or equivalent machine language program
HEX	Output file from MAC (used by HEXCOM)
HLP	HELP message file
$$$	Temporary file
PRN	Print file from MAC or RMAC
REL	Output file from RMAC (used by LINK)
SUB	List of commands to be executed by SUBMIT
SYM	Symbol file from MAC, RMAC or LINK
SYS	Systems file
RSX	Resident System Extension (a file automatically loaded by a command file when needed)

Table 6 Operating System modules.

MODULE	LOCATION	REMARKS
CCP	CCP.SYS	Console Command Processor. Basic user interface to the operating system.
LOADER	CCP.SYS	Program Loader Module. Loads transient (applications) programs from disk.
BDOS	CPM+.SYS	Basic Disk Operating System. Interface between application program and the physical I/O routines of the BIOS.
BIOS	CMP+.SYS and ROM	Basic Input Output System. Performs all physical I/O in the system. ROM section contains 8502 and display drivers.

Table 7 BDOS File System Functions.

DEVICE	BAUD RATE	DIRECTION	REMARKS
KEYS	none	input	Device 0, internal keyboard
80COL	none	output	Device 1, 80 column display
40COL	none	output	Device 2, 40 column display
PRT1	none	output	Device 3, serial bus printer (device 4)
PRT2	none	output	Device 4, serial bus printer (device 5)
6551	9600	both	Device 5, ext crt

Table 8 BDOS File System Functions.

Disk System Reset	Get Disk Free Space
Drive Selection	Chain to Program
File Creation	Flush Buffers
File Open	Get/Set System Control Block
File Close	Call BIOS
Directory Search	Load Overlay
File Delete	Call RSX
File Rename	Truncate File
Random or Sequential Read	Set Directory Label
Random or Sequential Write	Get File Data Stamps/Password Mode
Interrogate Selected Disks	Write File XFCB
Set DMA Address	Set/Get Date and Time
Set/Reset File Attributes	Set Default Password
Reset Drive	Return CP/M Serial Number
Set BDOS Multi-Sector Count	Get/Set Program Return Code
Set BDOS Error Mode	Parse Filename

Table 9 Drive Table.

NAME	TYPE	REMARKS
A	1541/1571	
B	1541/1571	
C	1541/1571	
D	1541/1571	
E	VIRTUAL	Shares drive A
F		Not present
G		Not present
H		Not present
I		Not present
J		Not present
K		Not present
L		Not present
M	EXTERNAL	Memory disk (RAM disk)
N		Not present
O		Not present
P		Not present

ICPUG is a highly influential organisation and brings many benefits to its members across the whole range of Commodore activity. CCI considered that a regular column from ICPUG would be of interest to many readers. The views expressed by ICPUG may not be those of CCI

Considering that it came out in 1982, the Commodore 64 is a very remarkable machine. Firstly, it has survived four years of use, abuse and criticism — no mean feat in itself for a micro. It has sold over seven million units worldwide — more than anything else on the planet, been turned into a portable in the form of the 'SX64', and now repackaged in a 128 lookalike box with GEOS; a GEM-like operating environment bundled in. Maybe in the future we shall see a C64D. One thing is certain though, that whatever happens to the Amiga, its rumoured next-generation replacement or the 128, and 128D, the C64 is with us for a long time yet.

Talking of the Amiga, I think that Commodore's pricing policy may well pay off in the long term. Commodore need to regain their business reputation and the introduction of Sidecar, which is a bolt-on IBM clone, complete with memory, slots, etc. goes a long way towards that aim. The staggering thing about sidecar, is that the Amiga treats it as just another task — you can still play Mindwalker or run d Paint, or whatever. Back to the price. In the business world, first impressions count, and if the Amiga is perceived as a games machine, then it doesn't stand a chance. Fortunately for us mere impoverished mortals who are just plain enthusiasts, Commodore have committed themselves to Amiga as a complete range — the up-market Duo, and maybe even a 'cost reduced' A500.

As an enthusiast I am always impressed by clever programming, and Compunet seems to be the place to find it. ICPUG is of course committed both to Compunet and to Micronet, and we have our own area on both 'nets (follow the routing from Clubspot 810 on Prestel, and GOTO ICPUG on Compunet).

Overall (and many people in ICPUG will disagree with this), I think that Compunet is the better network. Slower, yet but far more versatile. You can upload programs and text, even graphics, with hardly a moments thought, and it's there, available to everyone else instantly. Compare that with Prestel, where any text has to be sent or mailboxed to an editor, and it may be several days or even weeks before it appears on the net. Programs have to be sent off to Micronet, and might not appear at all!

The ease of interaction between users on Compunet has provided a very useful forum for programmers to try out ideas and experiment. For example, a short routine may appear on the system to write a message in the screen border. Somebody else comes along and says 'hey I like that' and produces a scrolling message in the border. Further developments then start to appear, such as colour and even animation.

I can't wait for the Amiga version of Compunet to appear!

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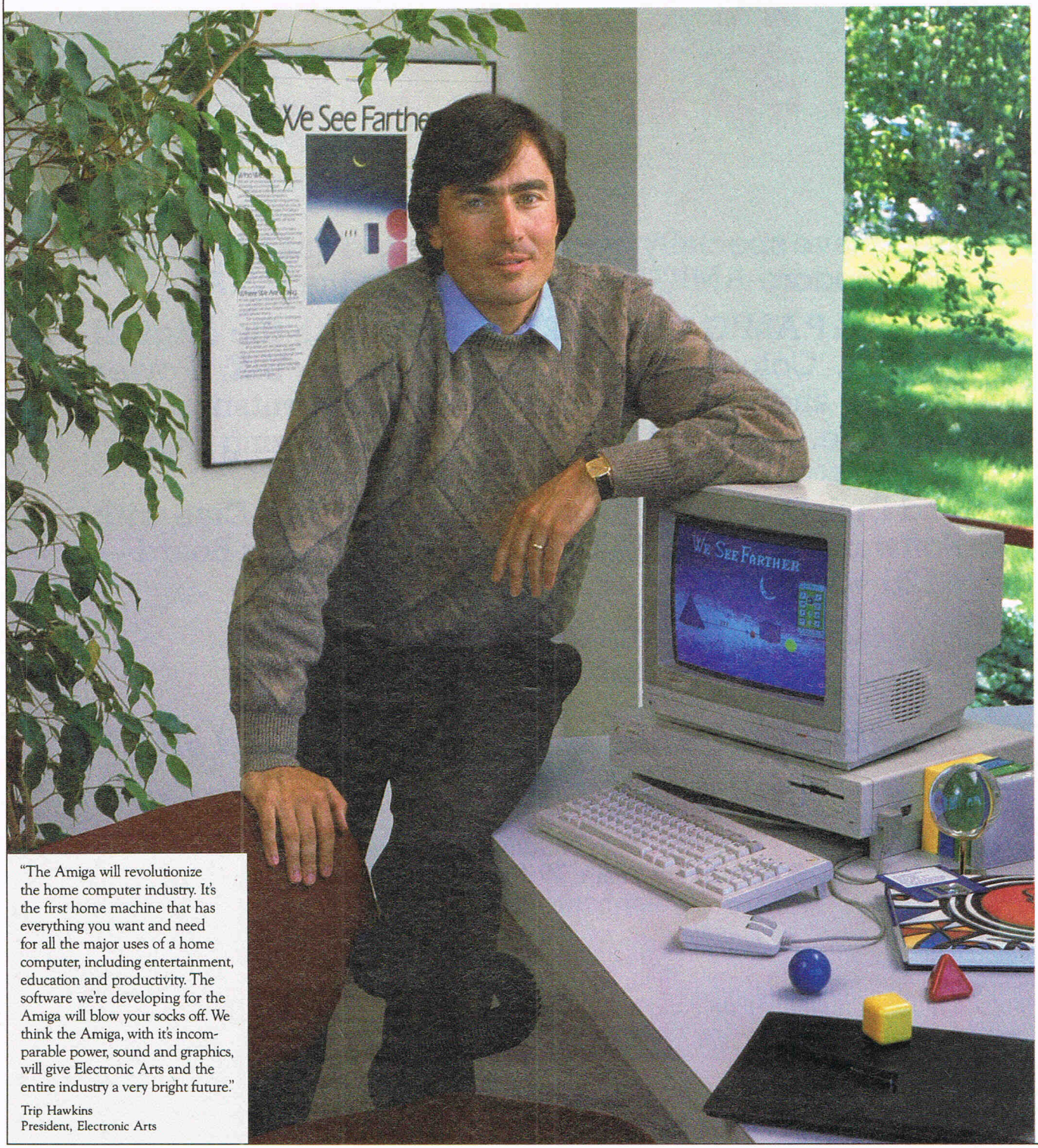

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But so far, the computer's promise has been hard to see. Software has been severely limited by the abstract, blocky shapes and rinky-dink sound reproduction of most home computers. Only a handful of pioneers have been able to appreciate the possibilities. But then, popular opinion once held that television was only useful for civil defense communications.

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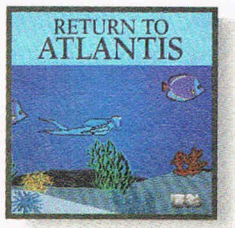

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BASIC for beggunnerz

PART VIII

In the last part of the series we looked at **logical operators** and examined what they were. I now want to look at what they can do and how they can be of use to us in programming, in particular the **OR** and **NOT** operators. The truth table for the **OR** operator is as follows:

0 OR 0 = 0
0 OR 1 = 1
1 OR 0 = 1
1 OR 1 = 1

Similar to the **AND** operator discussed is the last part of the series, this operator can be ustilised for range checking and also for setting bits within an address location or processor register. For example consider the following code fragment:

```
100 IF (X<8) OR (X>11) THEN PRINT
"INVALID DISK DRIVE SELECTED"
```

Here we have used the **OR** operator to test that the user has input the correct drive unit number as part of a disk drive selection routine. You can see that it is perfectly clear and unambiguous English and the only specialist knowledge required is the range of unit numbers the 1500-series drive can have. Try re-writing the above fragment using the **AND** operator. A hint would be using the assignments >= and =<

I mentioned earlier that the **OR** operator can be used for *setting* the bit values of addresses or processor registers, but I didn't mention what this means. You will recall from earlier sections of this series that the numbers and letters you type into your machine from the keyboard are converted into binary numbers. A binary number can only consist of either numeric value zero (0) or one (1). With the exception of the AMIGA, all Commodore computers maintain the representation of the users numbers or characters internally in a length of eight of these zero's or one's which are referred to as *bits*. Hence your computers processor is technically referred to as an *8-bit* machine. A *bit* is said to *set* when its value is 1 and *cleared* when its value is 0.

Manipulating these *bits* is more within the realms of assembly language programming although an appreciation of the whys and wherefores will be of value to you in preparing the way to this. Consider the following statement:

```
PRINT 2 OR 8
```

If you try this on your machine the answer will be 10 - why? Lets breakdown the decimal number 2 and 8 into their 8-bit binary equivalents:

2 = 00000010 8 = 00001000

Now refer back to the truth table for **OR**:

```
0 OR 0 =0   2... 00000010
0 OR 1 =1   8... 00001000
1 OR 0 =1   ____________
1 OR 1 =1
00000010  which is the
binary equivalent of 10.
```

Try this one:

```
PRINT 254 OR  64 answer: 254
PRINT 254 OR 128 answer: 254 (?!?!!?!?)
0 OR 0=0 254... 11111111 254... 11111111
0 OR 1=1  64... 01000000 128... 10000000
0 OR 0=1        ________      ________
1 OR 1=1        11111111 ...254... 11111111
```

Notice how all of the bits have been *set*, that is turned into 1's which give the answer of 254. The **AND** operator does the opposite:

```
PRINT 254 AND  64 answer:  64
PRINT 254 AND 128 answer: 128
0 AND 0=0 254... 11111111 254... 11111111
0 AND 1=1  64... 01000000 128... 10000000
1 AND 0=0        ________      ________
1 OR 1=1         01000000      10000000
```

By using the AND/OR operators simple comparative testing can be made provided you understand binary arithmetic - which you really should make efforts to come to terms with. The remaining logical operator is the **NOT** function which has the following truth table:

0 NOT 0 = 1
0 NOT 1 = 1
1 NOT 0 = 0
1 NOT 1 = 0

In other words this operator changes the bit to its opposite condition. Try using ther **NOT** operator on a modification of our previous examples:

```
PRINT NOT  64  answer: -65
PRINT NOT 128  answer: -129
```

Now, what do they have here? We have discovered a means of reversing the sign of a number and increasing its value at the same time - how can this

BASIC for beginners

PART VIII

be of use? Well there is a little-used function in Commodore BASIC that can be utilised for this phenomena, namely the **SGN** function, but before we look at this I'll just demonstrate a practical example of the use of the **NOT** operator:

```
. . .
. . .
100   IF NOT ok THEN GOSUB 500
. . .
. . .
. . .
500   PRINT "There is an error in the
            procedure"
```

The variable *ok* was defined earlier in the illustrated program code and was *set* to test for an error condition. Should this occur then program control is transferred to a user warning routine starting at line 500.

The **SGN** function relates quite closely to logical operations and calculates the sign value of a numeric expression. For example if an expression is negative, the **SGN** function yields a value of -1, a value of +1 if the expression is positive and finally 0 if the expression is zero value. Thus if:

A = B then SGN (A-B) is equal to O
A > B then SGN (A-B) is equal to 1
A < B then SGN (A-B) is equal to -1

This all may seem a little complex and the question arises of "is all this necessary?" Remember back to the very first part of this series - computer programming is all about comparisons between values. The use of logical operators provide further tools for use in the programmers armoury. An example of the use of **SGN** to select multiple branches is as follows:

```
100 ON SGN(A)+2 GOTO 1000,2000,3000
```

Thus if the variable (a) is a negative value then the program branches to line 1000, if equal to zero then to line 2000 or if positive then to line 3000. For further manipulations on the sign of a number the **ABS** function is provided. This makes a negative number positive and vice-versa, in the case of zero this is left unchanged since Commodore BASIC does not understand the esoteric principles of positive and negative zero as found in the high mathematics of quantum mechanics and atomic particle physics!

We'll now move on to something a little less cerebral and talk about files and input/output. Whenever you press the PLAY button on your cassette deck or type in the words **LOAD** or **SAVE** you set in motion many operations internally. The computer first has to decipher the instruction in terms of an input request - a LOAD command, or an output request - the SAVE command. In addition the computer has to have some means of identifying the block of date just as you do and some kind of a name must be ascribed to this data block or file as it is commonly called. Finally, there must be some type of control over where the data or file is to be placed. After all, a filing cabinet would be of little use if the files were just thrown in at random into any drawer. We have probably all met this condition at some stage and are well aware of the frustration it brings - imagine a telephone directory that was not in any sort of order! There are two further commands used in BASIC programming - **OPEN** and **CLOSE** and it is these which form the next part of the series.

Commodore BASIC uses a numbering system in order to identify the various devices attached to the computer. Some of these devices you probably may take for granted whilst others may be in position where you never thought about them and include the screen, keyboard, cassette unit, printer and disk drive. There are limitations on some devices, for example you cannot treat the screen or printer as an input device, they are always an output device and therefore a file can only be saved to these. Similarly, the keyboard can only function as an input device although this is not implemented as a separate device since ALL DEFAULT input is assumed from this unit. The numbering system adopted by Commodore for these devices is as follows:

Device	Number
Cassette	1
RS-232	2
Screen	3
Printer	4
Printer (alt)	5
Plotter	6
User-Defined	7
Disk Unit	8 to 11
User-Defined	12 to 31

Devices 7 and 12 to 31 are rarely met, if ever in BASIC programming. To communicate between devices we need to *open to file* or instruct the computer to inform the relevant unit that we want to *talk* to it - at this stage it has not been decided what form the communication will take, i.e. input or output. All we are doing is to instruct the device to *listen.* This concept of *talk* and *listen* is very important in BASIC programming, only the computer can serve as the central contraller and hence issue the instructions. It is possible for another device to instruct a further device to do something although the final control remains in the hands of the computer. For example, opening and then reading a file from the disk which contains instructions that the printer should do something is perfectly feasible, however remember that there is a drawback to regaining rapid control should anything go wrong and tbe program controlling this is flawed.

To inform a device that we no longer wish to talk to it means *closing* the file. It is very important to remember which file is *open* since you can have several files open at any given time, so it is vital that the correct file is closed after use. The method and control of opening and closing files is done by means of numbers, the syntax being:

OPEN <*file number*> <*device number*>
CLOSE <*file number*> <*device number*>

The *file number* can be any number from 1 up to 255 although it makes sense to use single digit numbers as they are easier to remember since it is up to you the programmer to keep track of these numbers - the system will not do it for you.

Some examples of file initiations are:

OPEN 1,1	open file number 1 to cassette unit
OPEN 9,3	open file number 9 to the screen
CLOSE 2,4	close file number 2 to the printer
CLOSE 8,8	close file number 8 to the disk drive

In the next part of this series I will be going further into files and how they are handled by Commodore BASIC.

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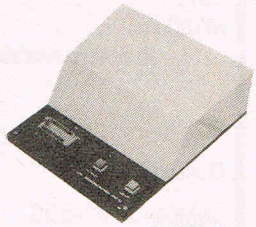

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THE BRITISH MUSIC FAIR

A musical feast for eyes and ears. Ian Waugh makes a glutton of himself.

Even if your musical ability extends no further than humming a Madonna single or saying n-n-n-nineteen, this was the place to be. The British Music Fair (let's be informal and call it the BMF) held in London in August. Every conceivable type of musical instrument was there including, of course, many which were plugged into computers with astonishing effects.

Commodore owners had plenty to look at and play with. Most of the equipment was heavily biased towards MIDI — it is, after all, the best way to make use of a computer in your music — but Music Sales had their range of Commodore Music software on show, too. This included their clip-on keyboard, the Sound Sampler, Music Maker II, and their new Sound Expander, of course, which produces brilliant FM sounds. There was something here for everyone, from the pro to the dabbler and such a range of music books to make your mouth water and your fingers itch.

For the dedicated computer musician there was a special Computer Music Stand on which several manufacturers demonstrated their (soft)wares.

We'll start with EMR (ElecroMusic Research) whose Mike Beecher was putting their range of MIDI software through its paces.

Their Commodore 64 Performer is a real-time (ie. the mistakes you play are the mistakes you get) MIDI package. It lets you record on up to 8 tracks and boasts a host of features such as overdub, transposition, count-in, an auto-note correct facility (or quantisation as it is technically and affectionately known), looping, text storage and an arrangement feature which lets you make up to 64 arrangements from your 8 recorded tracks. The Performer costs £49.94 and the MIDI Interface £79.90. Phone EMR's MIDI Infoline on 0702 335747.

Joreth were there demonstrating the very latest version of their Music Composer System which has just been reduced (reduced?) to £225. This includes their own super MIDI interface. The program uses an MCL (Music Composition Language) designed with the musician in mind. It gives you real-time and step-time input with lots of sophisticated editing facilities. It has loads of extras which would take the rest of the magazine to talk about but if you give them a ring (0386 831615) they'll send you all the details.

Steinberg software was on show, too. Their much-praised PRO-16 Sequencer (£100) was there for all to see and play with. This professional piece of software allows both real- and the step-time input and it is a real job to use. Also avialable is a music notation system called the TNS Scorewriter (£130) and new is the Edit Kit (£30) which is an editor for the PRO-16 (£30), on disc or EPROM.

Even newer is Trackstar, an introductory MIDI package for anyone who may be hesitant about taking the plunge into the world of MIDI. £70 buys an 8-track polyphonic sequencer program plus MIDI interface which can't be bad at all. The program operates like a multi-track recorder to bridge the gap between audio and digital recording. The screen even shows revolving tape spools to heighten the effect. Contact Steinberg Research UK on 08675 5277.

Rittor Music were proudly demonstrating Passport's Master Tracks, a 16-channel real- and the step-time sequencer with editing features such as cut, copy and paste with the ability to see and hear the music as you edit it. A song mode lets you build up to 256 different sequences from your recorded tracks. Master tracks has a RRP of £199.95 and a Passport interface costs £109.95 or £149.95 with a tape sync facility. Contact Rittor Music on 01-952 5302.

Of course, if you already *have* a MIDI interface for your Commodore you would probaby spend a great deal of time looking at instruments you can plug into it. That's what the BMF is all about and the 30,000 people who passed through the exhibition would no doubt agree. It's probably the greatest musical show on earth.

Make a date — see you there next year.

I.W.

Music Scene by Leslie B. Bunder

KNIGHT RIDER from OCEAN with music by Martin Galway

While the game 'KNIGHT RIDER' wasn't up to much, the soundtrack on the other hand fully supports the view that music is now an integral part of computer games and needs to be there.

Martin Galway's short but to the point 50 second rendition of the televisions' main theme is faithfully reproduced.

The flow of the music is a cross between the actual theme tune and Galway's own individual style as often heard on all the loading screens for the OCEAN/IMAGINE range of games.

MIAMI VICE from OCEAN with music by Martin Galway

Yet another soundtrack from Martin Galway and possibly the best yet from him.

Galway, has taken the '64 and turned it, musically sounding, into a mini-AMIGA.

All the hooks, swaying beats and sound which made MIAMI VICE into one of the best instrumental songs to grace the top 10 are here. The soundtrack lasts for 12 minutes, and naturally, Galway, has had to condense it down from 5 minutes worth of music, as used on the single. This means that what you actually hear is the soundtrack as used on the opening and closing credits of the television series.

MIAMI VICE shows that original soundtracks can be reproduced on the '64 and don't have to botched up as has quite often happened in the past with 'Back To The Future' and that awful rendition of 'The Power of Love'. MIAMI VICE is a very complicated song and it's nice to hear that Galway has been careful about the way in which he arranged it for the '64. If Galway, can work wonders with MIAMI VICE on the '64, imagine what he could do on an AMIGA!!

I.C.U.P.S. by Thor

I.C.U.P.S deserves some sort of award. The reason is that it's possibly the first game where the soundtrack is a lot better than the actual game itself. The music is well presented, polished and comes across very well. Thor have come up with what can loosely be described as a 'Heavy Metal' anthem for the Commodore 64.

Interesting fact: I gather some of the sounds were 'sampled' from real instruments, if this is the case, I hope Thor come up with some more similar excellent soundtracks.

Tom Rattigan, Commodore's President

Al Demin of Commodore Electronics Distibutors at the International Conference.

COMMODORE GETTING IT TOGETHER —INTERNATIONALLY

Internationally, Commodore is regaining its strength. That was the message that was forcefully carried away by a gathering of Commodore distributors from around the world held in the UK in September.

The conference was organized by Commodore Electronics — the overseas arm of CBM that controls almost all the world business of Commodore except North America, UK and some countries on mainland Europe. The conference brought together key people from the main distributors of Commodore products from such countries as Spain, Portugal, Eastern Europe, Cyprus, Greece, Turkey, Finland, the Middle and Far East, Scandinavia and other countries where CBM needs to prosper to ensure that it continues as a global force in computing. Commodore Electronics is headed up by Nick Bessey who moved from General Manager UK to run this vital division. However a measure of the importance with which Commodore regards these countries may be judged from the fact that Tom Rattigan, CBM's world president was on hand to make the keynote opening speech.

Rattigan was able to outline a much more optimistic picture than would have been possible a few months ago. He told distributors that Commodore was back on course again to recover its position as world leader in the micro market.

Gail Wellington, whose six years with Commodore must make her the most experienced member of the Commodore international team, presented the whole range of Commodore products that CBM offers worldwide.

She revealed some exciting new developments including a Commodore mouse for the new 64C which will take advantage of the GEOS package. There are also plans for a 3½ inch drive for non-Amiga Commodore machines which will fit into the picture that is generally taken of the way micros are moving.

It was also confirmed that CCI's exclusive report in the September Issue that CBM had considerably advanced development of other Amiga range computers was firmly based. The higher and lower range Amigas will almost certainly be slotted into Commodore's marketing strategies for the beginning of 1987

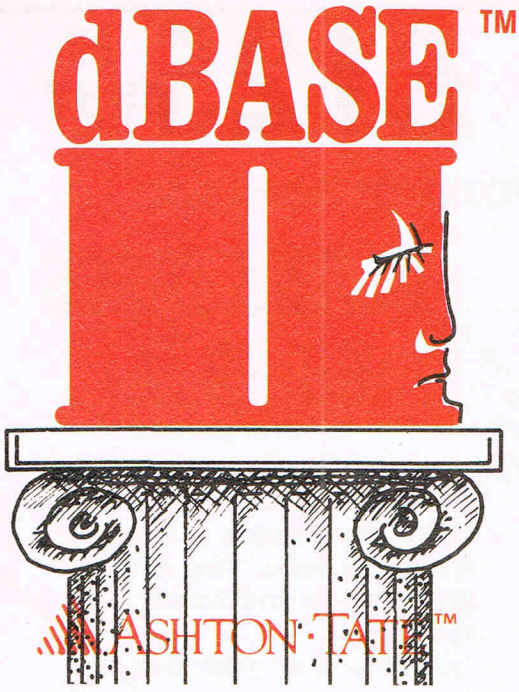
Ali Demin, recently appointed Commodore Electronics international Marketing Manager, presented the outlines of marketing structures and strategies that should bring Commodore's international distributors success even in highly competitive markets. He pointed out that Commodore's brand image was still a highly positive factor around the world.

Nick Bessey, Managing Director of Commodore Electronics painted a frank and clear picture not just of the advantages but also the problems that needed to be faced in Commodore's present recovering circumstances. The turnaround in recent months from massive loss to modest profit had not been easy to achieve. It had been done by severe trimming of costs and also by making up for past errors. It was vital for Commodore to continue successfully along this same path. To be a successful profit-making company costs must be kept down and margins up. It had to be remembered that the whole Commodore product range of computers the new 64C, the 128 and 120D, the upgraded PC's and the Amiga family — every one had been launched only in the last 15 months — an outstanding achievement for any company. Two outside organizations were invited to make presentations to the Conference a leading computer-based training organization and CCI. Antony Jacobson, CCI's Publisher and Managing Editor, told the audience of CCI's uniquely international approach and coverage. He also pointed out, to some laughter from the distributors, that his was the only presentation that had used the much vaunted Amiga graphics as a visual aid.

There were other sessions in workshop style to examine the problems faced by distributors. Commodore's distributors are at the sharp end of the change fortunes of the company. They cannot all be entirely happy with the way things have gone over the last two years. In open and very frank discussions they were able to make their worries known. Was Commodore really a capable of supplying them with sufficient product? And when and where they wanted it... Could it protect them from "grey imports"? ("Grey imports" are products brought without a manufacturers approval from one country to another to take advantage of price differentials.)

Nick Bessey and Ali Demin gave these and other points patently honest and even blunt answers. Commodore's distribution channels were being made more efficient... Everything that could be done would be to protect the distributors from illicit imports. It would give special attention and personnel if necessary to help them deal with their difficulties.

For most of us individually Commodore is thought of as some anonymous manufacturer responsible somewhere for making our own computer. But the reality is that it is far more than that. It is a global sales organization. It is a world power in the marketing of microcomputers. In countries where names like Spectrum and Amstrad mean little, Commodore is a household brand name. This conference held in the quiet luxury of an English country hotel is one of a chain of activities that create the understanding and the organization that are vitally necessary if Commodore is to stay "Thinking Ahead" and to maintain its position at the forefront of the global computer market.



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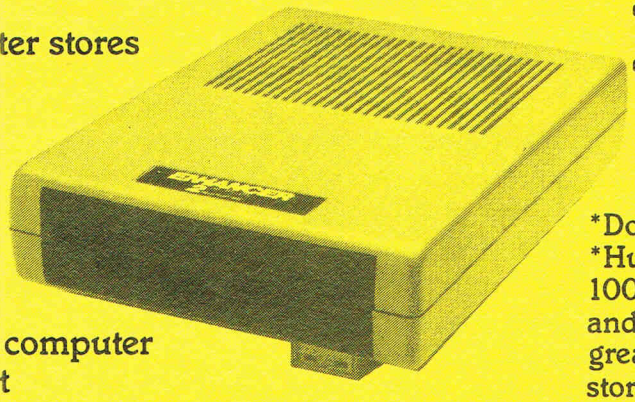

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Dear Rae...

This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET/CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

Programming Queries:

Dear Rae,

I have two problems. I typed in a program called "Castle Adventure", and when I press RUN, the screen says "You can go nowhere" and when I type anything else it says "try rephrasing it', so I just can't get anywhere.

Another programme "A Fairytale Adventure", has a type mismatch in line 40. Line 40 is . . . 40 RESTORE: FOR X=1 TO 72: READ Q$(X): FOR Y=1 TO 4: READ S%(X,Y): NEXT Y,X. Can you explain why?

T. Gillan, Aberdeen.

Dear Mr Gillan,

It's always hard to debug programs by mail. Perhaps a general comment would be helpful with your first query. Most BASIC programs are written in a fairly straightforward way, with, for example, screen drawing routines and DATA statements collected together: this makes sense, since the programmer would otherwise have to work harder than necessary. If you look at the original program listing, you'll probably be able to work out roughly how the program is intended to work. In your case, RUN seems to sent your program into an inappropriate location; perhaps a GOTO is wrong, or data has been set up wrongly.

In your second query, line 40 is intended to read 72 batches of information, each batch being a string variable followed by four integers — something like this: "giant",24,1,2,3 where the four numbers are used by the program for its own purposes. A type mismatch simply means you haven't got your data statements to match this layout, and the program is, for example, trying to read a word as though it were a number.

Dear Rae,

I have a problem concerning converting the "News Delivery Checker" program in the July '86 issue of CCI. Is it possible to convert this program for the C16?

M. G. Major, South Killingholme

Dear Mr Major,

Let me answer this in a way which may be helpful to more readers. Commodore machines (apart from Amiga) have similar BASICs, so it's often possible to run a program written for (say) the 64 on (say) a Plus/4 — and much easier than trying to adapt some other BASIC, e.g. Apple. But later machines tend to have more features than earlier ones; C16, Plus/4, and C128 all have graphics commands which are missing from the 64, for example. So a pure BASIC program can often be typed directly from a C64 into a C16, but the reverse process may be more difficult.

Programs with PEEKs and POKEs (typically to control sound and/or graphics with the C64) generally don't transfer between computes; miss them out and try to find substitutes.

*A serious problem with the C16 is its small memory; a long program, or a program which stores a lot of data in memory, may simply not fit into a C16, and therefore not be usable with it. It makes sense to guess the amount of memory a program will need **before** typing it in. Look for DIM statements — arrays can use up a lot of space.*

Dear Rae,

I played a lot of Bingo on holiday. Could you make a Bingo game for the 64? The game could have cards and counters and check for winning lines.

Daniel Smith (Age 9), Rochdale.

Dear Daniel,

Thanks for your letter and your interesting idea. If you think about it, you'll probably agree that a computer game might not be much fun — the computer would do everything, and the 'players' would just sit and watch, until one of the computergenerated cards won. Maybe this is why no-one has done this.

Another interesting problem is to print your own Bingo cards — you have to make sure they're all different.

Graphics on the 64 and 128:

Dear Rae,

I'm writing to you on the subject of 'Bank Switching' on my 64. I wish to display some sprites which are in a high memory location. I've got a far as poking 56576 to change the VIC chip's bank, but locations 53272 and 648 also seem to be important. Please Help!!

J. Fletcher, Colchester.

Dear Mr Fletcher,

This is quite complex. 53272 does change the start addresses used by the VIC chip, and 648 is used by ordinary BASIC. I'm sending you a copy of a diagram which shows all the combinations available with the 64, which should help; it shows how you can select which part of memory will hold the screen, the character set, and sprite definitions.

Dear Rae,

I have a problem with high-resolution multicolor graphics on the Commodore 128. The colour map, generally stored in 1000 bytes after $D800, appears not to work in BASIC 7 (though it still works in machine code). There appears to be a separate colour area.

Tim Watson, Hitchin.

Dear Mr Watson,

Graphics on the 128 are complicated by the fact that the system uses interrupts, in order to allow split-screen graphics. At each interrupt, VIC chip registers get reset unless intermediate or 'shadow' locations are set. (Unlike the 64, where pokes to the VIC chip can be made directly). With standard BASIC graphics and text this is fine, but otherwise it can make life difficult. I suggest you consult Commodore's official C128 Programmers Reference Guide (one source of supply is Biblios, on 0403-710971), where pages 243 and 213 throw light on the matter.

Disk Queries:

Dear Rae,

I own a C64 and 1541 disk drive and hope to buy a Commodore 128. The question I'd like to ask — and perhaps many other people — is whether the 1541 disk is fully compatible with the 128 in all 3 modes.

W. L. Williams, Lampeter.

Dear Mr Williams,

No, it isn't. But it is very largely compatible. The 1570 (single sided) and 1571 (double sided) have a few extra facilities: (i) they can read disks recorded on other computers, for example Kaypro, and hence CP/M disks produced by these machines; (ii) they have a faster mode, called 'burst' mode, written into ROM, which means they can transfer data faster. Some software checks for this, and takes advantage of it if it's present. Note that 1541 and 1571 ROMs are different, so some programs (eg with custom fast-loaders) may work on one but not the other.

In short, for most purposes, you could happily stick with your 1541; mostly you won't notice much difference.

Dear Rae,

I've been told that it's possible to switch the 'magic eye' on the 1541 disk drive via a homemade external switch. So, when using double sided disks you only flick the switch instead of cutting a hole in the disk. Can you explain? PS. I have bought your latest book which I consider to be explained better than any other. PPS. I still don't understand how to program my computer?

J. Kelly, York.

Dear Mr Kelly,

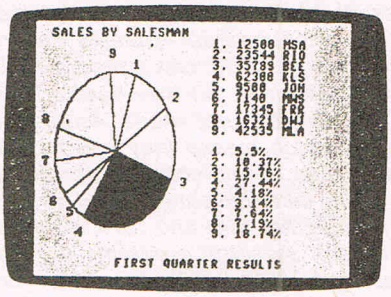
*When floppies were expensive, people would occasionally use both sides of a disk by cutting a notch opposite the write-protect notch and simply turn the disk over. If you disconnect the write-protect mechanism, you still have to turn disk over to do this — the system **doesn't** turn itself into a double-sided system with two read/write heads.*

Most people (including myself) don't recommend this; the other side may not be reliable, and reversing the direction of the disk is believed to make its surface relatively dirty.

Thanks for your nice comments.

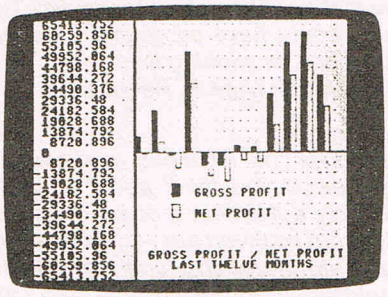
PLUS GRAPH for the Plus/4

PLUS GRAPH is a graphics package for the PLUS/4 and C64, utilising the high resolution mode of either machine, that is 320 by 200. The product allows the creation of barcharts, line graphs and pie charts using direct-entry data from the keyboard or from the storage device which in this case is the disk drive. A full editing capability allows the incorporation of text into the graphic display in addition to redrawing the existing numeric data. Thus new lines or circles can be added at the user's discretion together with the facility to perform fills on the circles.



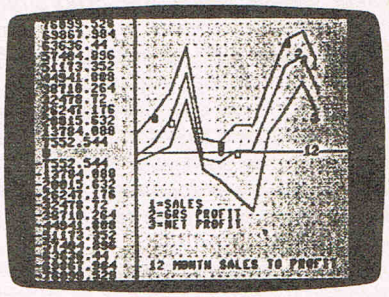
The line graph provides 3 lines by allowing up to 3 sets of data, each set containing a maximum of 50 values. The bar chart also allows 3 sets although only 12 values per set are allowed whilst the pie chart only allows 1 set with 9 values in the set. Therefore the line graph facility allows you to plot a maximum of 150 values, the bar chart only 36. I was particularly interested in PLUS GRAPH from the point of view of the PLUS/4 since application software packages for this machine, as readers will know well, is few and far between. The product supports 1525, 1526/MPS 802 and MPS 801 printers only which I felt seriously limited it use since many users, including myself have Centronics interface printers such as EPSON. It would have been nice to have had a Centronics printer driver built-in. No such problems with the disk drive, the PLUS GRAPH manual mentions only the 1541 drive - I found no problems at all in using a 1571 drive running in 1571 mode.

The data entry into PLUS GRAPH can come from the keyboard or from sequential ASCII files created by a spreadsheet, wordprocessor or database. The opening screen is reminiscent of a spreadsheet with columns and rows, the cursor can be moved around the screen using a combination of the cursor keys and the function keys. The



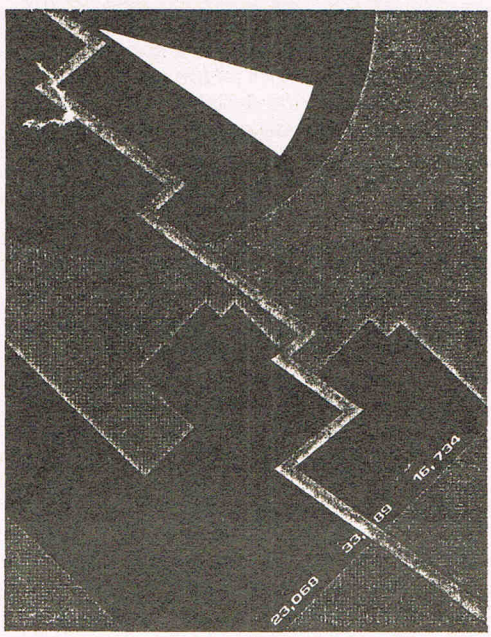
21 page manual was rather confusing at this point since some of the descriptions given were incorrect for operating with a PLUS/4 and were actually meant for the C64. However, with a little perseverance all became clear, but a black mark to Tri-Micro for not clarifying this before finally releasing the product. This ability to accept ASCII SEQ files is very important since this file structure is the common currency of most data transfers between Commodore machines and applications. There are limits to the size of SEQ files — only 50 records, although splitting up sequential files is not very difficult.

The actual drawing of the graphs was commendably fast, proving the efficiency of the graphics operating system of the PLUS/4. The graphs could be automatically scaled and provision was to specify integers rather than the default of single-precision floating point numbers. The data, once it was in the machine could be manipulated in terms of moving columns around and copying — very impressive. Files could be saved to disk although they could only be read back by PLUS GRAPH, a pity really as it would be nice to call the graph files into other programmes.



The disk supplied also contained two other programs specifically for the PLUS/4. One was a straightforward 1541 BACKUP which copies unprotected disks between 1541's. Beware of the limitations of this — it cannot copy relative files or deal with sequential files greater than 90 blocks. The other program was a disk file-renamer and format utility. I would imagine that most users have copies of all of these programs since they are virtually public-domain these days. The disk format seemed totally unnecessary as the PLUS/4 has the built-in HEADER command.

PLUS GRAPH is certainly worth considering if you have a requirement to view your data in graphical form. Apart from the confusing manual, it is simple to use and above all — quick in operation. There are limitations on what the user can do in terms of printed output and interaction with other software pieces however. Overall I liked PLUS GRAPH — a serious programmer could easily overcome these limitations and turn a useful product into a powerful one.



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IT'S PREVIEW TIME!

UCHI-MATA

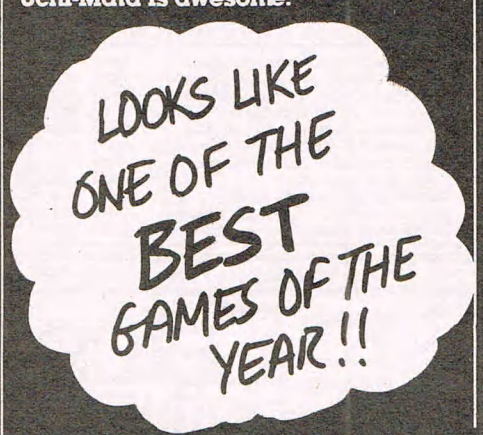
We've got an early version of Uchi-Mata. It looks like one of the best game of the year. Something that will grab you right through the autumn with the need to get back to it time and time again.

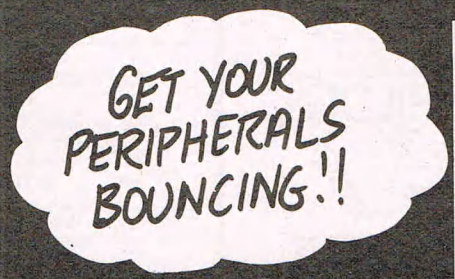
Uchi-Mata is an accurate simulation of Judo, and makes a nice change from "kick'n slay" type martial arts games. Unlike Way of the Exploding Fist and similar games, this game actually requires clever strategy and skill. You have to constantly look at your opponent's position, his feet, and his grip.

The top left displays both your own and your opponent's foot positions, which obviously change as you move. By looking at these, you can anticipate what he is going to do, and try to avoid throws by twisting out. The top left shows grip strength, and if his is high, then you may not be able to get out of it, and end up ignominiously dumped on the floor, flat on your back. The foot display then changes to display a referee awarding points. If you manage to lay out your opponent on his back, you get full points, and for partial flooring, a smaller score.

Uchi-Mata, especially in two player mode, requires intense concentration. You have to watch the grip meter, the foot display, and your opponent on the screen, so rather than just going in to kill by kicking as fast as you can, Uchi-Mata requires that you watch every move, and calculate what you are going to do next.

The graphics are also very good, with excellent animation. Apparently, the programmers watched judo videos for hours to be able to design the animation frames correctly. If you want to do more than just get bored of kick jab kick, start quewing now. Uchi-Mata is awesome!





TRAILBLAZER FROM GREMLIN

John Wayne and Randolph Scott . . . POW! No this isn't the game of a Wild West film . . .

Trailblazer is set in a fantasy world: a road through space spanning the depths of the extreme. What is this weird creation, you ask yourself? Is it a plane . . . is it a bird . . . NO! It's a bouncing ball! And a very nicely animated ball it is too . . . rotating quite perfectly, scintilatingly bouncing along a road with no barriers, so don't fall . . .

Phew! Back to earth after that brain-bending description! Trailblazer is a rather strange game, and it is difficult to classify it, so I'll just say that it's a pangalactic, interstellar, mindwarping, gargleblaster of a game! You can either practice, compete against the computer, or play against another player, which is, as usual, the most fun. The ball is speeded up and slowed down by respectively pushing forward and pulling back on the stick. Pressing fire repeatedly causes the ball to bounce higher and higher, enabling it to leap with bounds of boing the hazards in its path. Speed strips, slow strips, and obstacles all stand in your way, and scattered along the road are holes and rifts which if you run over, you'll run through plummeting to the abbys beyond!

Although technically very nice, with fast scrolling smooth animation, and a very nice ball (you and your balls-Ed) the game itself does get a bit tedious after a while. But just when you've sworn you've played it for the last time. 20 minutes later you'll be back at the joystick, guaranteed! A well implemented game, and certainly nicely coded! This game will certainly get your peripherals bouncing!

JACK THE NIPPER FROM GREMLIN

Jack the Nipper, converted from the Spectrum where it enjoyed a good reception has finally made its debut on the Commodore 64. The game involves controlling a rather malicious little brat called Jack whose sole intent and purpose in life seems to be to cause as much chaos, destruction and despair as possible in his town.

Jack runs around in his nappy, giving a malicious, toothless grin at passers by, and generally being a complete pest. First he mut escape from his house, but of course, he can't leave without his pea-shooter which makes people's faces turn purple with rage when they're hit! Avoid the ghosts, which can be shot and vanquished with the pea-shooter.

Around the town are fourteen different nasty things Jack can do. He can enter the flower-centre, pinch the weedkiller, and kill all the plants in the garden. Then sprinkle the now devastated garden with fertiliser and start a trifid farm! Alternatively, he could take the glue from the launderette, go to the false teeth factory, and ruin the machinery, causing the manager to go purple with rage and chase you out. If you are caught, then you get a severe spanking, and the rash-meter goes up! Once it reaches the end, you forfeit a Jack, and once your Jacks run out, that's the game over.

Jack the Nipper is what can be described as 'cute'. It features good graphics (even though they are very Spectrumushroomy in design), and a nice, simple sound track. To discover what to do with what, and where to find it takes a while, so it could almost be called an adventure. Highly recommended.

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128

C128 BANKER

This is a small (41 byte) Machine code programme to help make use of some of the 128's extra memory by use of one of its inbuilt (Kernal) routines. The programme was originally written to allow the user to store hi-res pictures in the extra bank of memory (bank 1) and then to retrieve them from within a basic or machine code programme. Using this technique it is possible to have several screen shots in memory at once, all of which can be viewed by means of a SYS call.

Listing 1 — Type in and save. Lines 100-120 read in the machine code and poke it into the cassette buffer. The programme is relocatable so if you are already using the buffer you can store it somewhere else by changing the value of 'L' in line 100. Line 140 see Listing 2. Line 150 turns on and clears the hi-res screen. Lines 160-170 Draw a box with the words 'PRESS ANY KEY' in the centre. Line 180 waits for the user to press any key. Line 190 calls the machine code routine which in turn copies the area 8192 to 16384 in bank 1 into the hi-res screen in bank 0. As we have not put anything into bank 1 yet, all we would see would be the screen fill with rubbish. This rubbish is whatever was in bank 1. Line 200 holds this display for 2 seconds and then turns off the hi-res mode and ends. Lines 220-240 contain the data for the machine code. Run Listing 1.

How can we tell that the rubbish we saw on the screen actually came from bank 1? Try this simple experiment. Enter the built in monitor by either pressing F8 or typing and entering 'MONITOR'. Now type 'F 12000 14000 01' and RETURN. All you will see is the cursor disappear for a few seconds and then return. Now type 'X' and return. We are now back in BASIC. Now to explain what we just did. Lets break down the command we entered. F — 1 — 2000 — 1 — 4000 — 01. The 'F' tells the monitor that we want to FILL an area of memory with something. the '1' before the '2000' and '4000' is the bank number where the memory to be filled lives. The '2000' and '4000' is the start and end address of the memory in hex. (8192 — 16384 in Decimal). The '01' is the value with which we want to fill the memory. We therefore filled memory 8192 to 16384 in bank 1 with 1's. Run listing 1 again. Now when we press a key the screen fills with vertical lines instead of rubbish.

Listing 2 — This listing will only be of use to disc drive owners. Type in and save. Line 10 turns on and clears the hi-res screen. Line 20-30 draws a box with 'SCREEN TWO' in its centre. Line 40 saves this hi-res screen to disc. it will use up 33 blocks so make sure you have enough room on your disc before running. Line 50 turns off the hi-res mode and prints the 'Finished' message. Run listing 2.

Remove the REM from line 140 in listing 1 and then run. When you type run this time you may notice that the disc drive bursts into life. This is caused by line 140 which loads in the screen that listing 2 created and saved as a programme. This it does using the BLOAD command. If you look at line 140 you see it comprises of the programme name followed by B1,P8192. The B1 simply means Bank 1 while the P8192 tells the computer where in bank 1 to start loading it. In our case 8192 (2000 hex). So we have just loaded a picture into bank 1. Now when you press a key you will see that the machine code routine has copied the 'SCREEN TWO' from bank 1 into our hi-res screen in bank 0.

This routine is not just limied to moving hi-res screens. It will move any block of memory from any bank. Listed below are some pokes which if used with the programme in the cassette buffer will allow you to alter the default parameters. It should be fairly simple to expand on this routine and make it more flexible. Happy hacking . . .

Poke 2819, Input-block
Start address of input memory/256
Poke 2823, Output-block
Start address of output memory/256
Poke 2833, Bank-read
Number of bank to be read 0-15
Poke 2851, Qty
Last address of output memory/256

Ian Bennett

LISTING 1

```
0 REM ************************************
1 REM *                                  *
2 REM *  BANKER FOR THE COMMODORE 128    *
3 REM *                                  *
4 REM *    BY IAN BENNETT 09/08/86       *
5 REM *                                  *
6 REM ************************************
100 L=2816:FOR X = 0 TO 40:READ A
110 POKE L+X,A:T=T+A:NEXT
120 IF T <> 6737 THEN PRINT"DATA ERROR":STOP
130 :
140 REM   BLOAD"SCREEN TWO",B1,P8192
150 GRAPHIC1,1
160 BOX 1,10,10,310,190
170 CHAR 1,14,10,"PRESS ANY KEY"
180 GETKEY A$
190 SYS 2816
200 SLEEP 2:GRAPHIC 0
210 :
220 DATA 160,000,169,032,133,252,169,032,133,254,169,000,133,251,133
230 DATA 253,162,001,169,251,032,116,255,145,253,200,208,244,230,252
240 DATA 230,254,165,254,201,064,240,002,208,232,096
```

LISTING 2

```
10 GRAPHIC1,1
20 BOX 1,10,10,310,190
30 CHAR 1,14,10,"SCREEN TWO"
40 BSAVE"SCREEN TWO",B0,P8192 TO P16384
50 GRAPHIC 0:PRINT "FINISHED"
```

MACHINE CODE LISTING FOR DEFAULT PROGRAMME.

AS IT STANDS WITHOUT POKING ANY NEW VALUES IN
IT WILL COPY THE AREA 8192 TO 16384 IN BANK 1
TO THE HI-RES SCREEN IN THE DEFAULT BANK

```
00B00  A0 00     LDY £$00        ; LSB OF READ ADDRESS
00B02  A9 20     LDA £$20        ; MSB - IS POKED TO SELECT INPUT BLOCK
00B04  85 FC     STA $FC         ; ZERO PAGE ADDRESS - MSB FOR INPUT
00B06  A9 20     LDA £$20        ; MSB - IS POKED TO SELECT OUTPUT BLOCK
00B08  85 FE     STA $FE         ; ZERO PAGE ADDRESS - MSB FOR OUTPUT
00B0A  A9 00     LDA £$00        ; LSB - OF INPUT AND OUTPUT BLOCK
00B0C  85 FB     STA $FB         ; ZERO PAGE ADDRESS - LSB FOR INPUT
00B0E  85 FD     STA $FD         ; ZERO PAGE ADDRESS - LSB FOR OUTPUT
00B10  A2 00     LDX £$00        ; POKED WITH MEMORY BANK TO BE READ
00B12  A9 FB     LDA £$FB        ;
00B14  20 74 FF  JSR $FF74       ; KERNAL ROUTINE - INDFET (FETCH)
00B17  91 FD     STA ($FD),Y     ; STORE DATA 'FETCHED' INTO OUTPUT BLK
00B19  C8        INY             ;
00B1A  D0 F4     BNE $0B10       ;
00B1C  E6 FC     INC $FC         ;
00B1E  E6 FE     INC $FE         ;
00B20  A5 FE     LDA $FE         ;
00B22  C9 40     CMP £$40        ; HAVE WE COPIED 2K YET?
00B24  F0 02     BEQ $0B28       ; YES - THEN END
00B26  D0 E8     BNE $0B10       ; NO  - THEN GET SOME MORE
00B28  60        RTS             ; RETURN TO BASIC PROGRAMME
```

BLOCK SAVE C64

This program, from Tom Nuttal, will save any block of memory to disk or tape with the filename of your choice. As it stands the program saves to disk. If you wish to save to tape then change the poke in line 1015 to poke 781,1.

The block can then be loaded with Load "filename", dv,1 where dv is either 8 for disk or 1 for tape.

This is suitable for inclusion in a Basic programme as a subroutine. Line 20 contains the Start and End addresses of the block in the variables S & E.

```
20 S=1024:E=2047:GOSUB1000:END
1000 REM SAVE MEMORY FROM S TO E TO DISK
1005 INPUT"FILENAME";F$
1010 A=LEN(F$):FORI=1TOA:POKE827+I,ASC(MID$(F$,I,1)):NEXT
1015 POKE780,1:POKE781,8:POKE782,255:SYS65466
1020 POKE780,A:POKE781,60:POKE782,3:SYS65469
1030 POKE252,INT(S/256):POKE251,S-256*PEEK(252)
1040 POKE782,INT(E/256):POKE781,E-256*PEEK(782)
1050 POKE780,251:SYS65496:RETURN
READY.
```

Program

PRINTER ENHANCER

C64/C128

Duncan Anderson has sent us a C64 & C128 program for an alternative print style for the much criticised 801 and 803 printers. It is rather large at just under 400 lines but we think it will have considerable appeal to printer users.

The listing contains a large number of data statments but these should only affect the type style and not crash the program

This is an example of the enhanced print style now available from list-64. Notice that the letters now have true descenders, and proportional spacing (ie. ii takes up less room than www). This was printed out on an MPS-801 printer, but also works on other Commodore dot-matrix printers (eg. MPS-803). Not only is the print quality enhanced, but you can also:

1) Produce UNDERLINED text.
2) Produce EMPHASISED text.
3) Produce UNDERLINED & EMPHASISED text.

I should imagine that there is quite a large number of C64 users, who have recently bought the Peripheral Pack in order to enhance the abilities of their computers. If you are in this group, then you will probably have been disppointed to find that the printer included (either MPS-801, or MPS-803), does not have descenders. This leads to the unsightly effect of the p's, q's and g's sticking up above other letters. Although you could probably put up with this yourself, if you wish to use the computer for wordprocessing, it is not really acceptable. So, it was with this though in mind, that this program was written. Not only does it provide the user with descenders, but the whole print style has been completely redesigned, providing an output not dissimilar to that produced from an Apple Mac. I am sure, that although the program is quite long, you will appreciate the considerable improvement in print quality provided by it.

By utilising the graphics mode of the printer, I have been able to produce the required effects. In order that the redefined text could have a stylish appearance, each line of text, now takes up about one and a half times that before. However, as we all know, you don't get something for nothing, and by using the graphics mode the speed of printing coupled with the fact that the file needs to be processed in BASIC, become very slow. This means that you will probably not want to use this print mechanism all the time, but for important letters, or any document which requires a professional appearance, it can come in very handy.

The program has been written, so that it will take standard RSCII sequential files off a disk, and print them onto the printer. Since the program is primarily intended for wordprocessing, the program performs word-wrapping, in order that words are not split in half at the end of a line. Furthermore, the printer is now able to perform proportional spacing, ie it takes up less room than ww. This again, creates a better appearance.

However, if you use Easy Script (as an overwhelming majority C64 users do), then a number of the commonly used commands are recognised by the program. These include right, and left margins (the character numbers are the same as for normal print, not the new redefined print size — for ease), centred text, and forced page breaks. The printer now has the same print styles as the 8300, in appendix C of the manual. Thus, underlined text can be achieved by enclosing the text with F1/[and F1/] (ASCII 169,m and 223). Bold text can also be achieved (not possible on normal output from the MPS-801, and MPS-803), by enclosing the text in F1/;, and F1/: (ASCII 188, and 190).

Although the program is best used with Easy Script, there is no reason why it can not be used with any word processed file. It should be a relatively simple procedure to alter the commands which Easy Script uses, to the ones used by your particular word processor.

Commodore printers usually use a 6x7 dot matrix to form their characters, and the printer automatically advances the paper a few pixels more, so that there is a small gap between lines. When the graphic mode is usd, each vertical line of seven pixels is defined by a characte code sent from the computer, but the printer no longer advances the paper to produce a gap between lines. Luckily, this adds up to exactly fourteen pixels — the equivalent of two normal characters (no accident!). Thus, by using exactly two sets of data sent to define each character, we do not have to get involved in complex shifting operations to define the characters. However, we do not get half the normal number of lines on a page, since the printer is no longer advancing the paper so much (as we are in graphic mode) — instead of 66 lines, we get 45 lines, so the amount of text that can be reproduced on one page is still quite large.

To use the program, type it in as listed, and then save it on disk or tape. Once this is done, you can run the program, and type in the name of the file to be printed out. It may take a little time for the first line to appear, so give it a chance to process the text, and you should soon be producing professional quality output!

```
10 rem ********************************
20 rem ****     char set for       ****
30 rem ****     cbm printers       ****
40 rem ****    (c) d.anderson      ****
50 rem ********************************
51 poke 53280,3:poke 53281,1:rem set screen colours
60 data 166,63,134,20,164,64,132,21:rem m/c data
70 data 32,19,166,56,165,95,233,1,133:rem m/c data
80 data 65,165,96,233,0,133,66,96:rem m/c data
81 for a=49152 to 49152+25:rem set up restore to line-number m/c
82 :  read b:poke a,b
83 next
100 po=0:wi=0:print"■";chr$(14);chr$(11);:rm=480:lm=0
110 gosub 50000
120 open 1,8,4,file$+",seq,r":open 15,8,15
130 dim bo(490),tp(490),ct(490),cb(490)
140 open 2,4:print#2,chr$(8);chr$(13);chr$(13);
145 rem do
150 :  get#1,a$:ch=asc(a$)
160 :  if (ch<32) or (ch>122 and ch<193) or (ch>218) then gosub 40600:goto 150
170 :  poke 63,(ch*100) and 255:rem set line number for restore
180 :  poke 64,int((ch*100)/256):rem set line number for restore
190 :  sys 49152:rem restore to line number as above
250 :  la=a:read a
255 :  if a=-1 then goto 300:rem do while a<>-1
270 :    if db=0 then tp(po)=a
275 :    if db=1 then tp(po)=a or la
280 :    widt=widt+1:po=po+1
285 :    la=a:read a
290 :  goto 255:rem loop
300 :  b=0:count=0
305 :  if db=1 then tp(po)=128:bo(po)=128:po=po+1:wi=wi+1
306 :  if db=1 and ul=1 then bo(po-1)=136
307 :  lb=b:read b
310 :  if b=-1 then goto 350:rem do while b<>-1
330 :    bo((po-widt)+count)=b
335 :    if db=1 then bo((po-wi)+co)=bo((po-wi)+co) or lb
336 :    if ul=1 then bo((po-wi)+co)=bo((po-wi)+co) or 8
337 :    co=co+1
338 :    lb=b:read b
340 :  goto 310:rem loop
350 :  widt=0
360 :  if po>=rm then gosub 40000:gosub 40400:gosub 40200
380 :  a=128:b=128
500 if st=0 then goto 145:rem until st
514 print
520 input#15,a,b$,c,d:print a;b$;c;d:close 15
525 close 1:print#2:close 2
530 end
3200 data 128,128,128,128,-1:rem *** space ***
3250 data 128,128,128,128,-1
3300 data 128,190,128,-1:rem *** ! ***
3350 data 128,130,128,-1
3400 data 128,131,128,128,128,131,128,-1:rem *** " ***
3450 data 128,128,128,128,128,128,128,-1
3500 data 200,255,200,200,255,200,128,-1:rem *** # ***
3550 data 128,131,128,128,131,128,128,-1
3600 data 204,146,255,146,228,128,-1:rem *** $ ***
3650 data 128,129,131,129,128,128,-1
3700 data 131,227,144,140,131,128,-1:rem *** % ***
3750 data 131,128,128,131,131,128,-1
3800 data 238,145,145,174,192,160,128,128,-1:rem *** & ***
3850 data 129,130,130,129,128,129,130,128,-1
3900 data 128,131,128,-1:rem *** ' ***
3950 data 128,128,128,-1
4000 data 248,134,129,128,-1:rem *** ( ***
4050 data 128,131,132,128,-1
4100 data 129,134,248,128,-1:rem *** ) ***
4150 data 132,131,128,128,-1
4200 data 146,212,184,212,146,128,-1:rem *** * ***
4250 data 129,128,128,128,129,128,-1
4300 data 144,144,254,144,144,128,-1:rem *** + ***
4350 data 128,128,129,128,128,128,-1
4400 data 128,128,128,-1:rem *** , ***
4450 data 136,134,128,-1
4500 data 144,144,144,144,144,144,128,-1:rem *** - ***
4550 data 128,128,128,128,128,128,128,128,-1
4600 data 128,128,128,128,-1:rem *** . ***
4650 data 128,131,131,128,-1
4700 data 128,192,176,140,131,128,-1:rem *** / ***
4750 data 134,129,128,128,128,128,128,-1
4800 data 252,130,129,129,130,252,128,-1:rem *** 0 ***
4850 data 128,129,130,130,129,128,128,-1
4900 data 130,255,128,128,-1:rem *** 1 ***
4950 data 130,131,130,128,-1
5000 data 130,193,161,145,142,128,-1:rem *** 2 ***
5050 data 131,130,130,130,131,128,-1
5100 data 128,130,145,153,166,192,128,-1:rem *** 3 ***
5150 data 132,136,136,136,132,131,128,-1
5200 data 176,168,164,242,160,128,-1:rem *** 4 ***
```

```
5250 data 128,128,130,131,130,128,-1
5300 data 158,146,146,146,164,192,128,-1:rem *** 5 ***
5350 data 136,136,136,132,130,129,128,-1
5400 data 252,146,137,137,144,224,128,-1:rem *** 6 ***
5450 data 128,129,130,130,129,128,128,-1
5500 data 131,129,225,153,135,128,-1:rem *** 7 ***
5550 data 128,131,128,128,128,128,-1
5600 data 192,172,146,146,172,192,128,-1:rem *** 8 ***
5650 data 129,130,132,132,130,129,128,-1
5700 data 140,146,161,161,146,252,128,-1:rem *** 9 ***
5750 data 128,128,130,130,129,128,128,-1
5800 data 128,128,196,196,128,128,128,-1:rem *** : ***
5850 data 128,128,128,128,128,128,128,-1
5900 data 128,128,136,128,-1:rem *** ; ***
5950 data 128,136,134,128,-1
6000 data 144,168,196,130,129,129,128,-1:rem *** < ***
6050 data 128,128,128,129,130,130,128,-1
6100 data 128,200,200,200,200,200,200,128,-1:rem *** = ***
6150 data 128,200,200,200,200,200,200,128,-1
6200 data 129,129,130,196,168,144,128,-1:rem *** > ***
6250 data 130,130,129,128,128,128,128,-1
6300 data 130,129,177,145,142,128,-1:rem *** ? ***
6350 data 128,128,130,128,128,128,-1
6400 data 254,129,185,197,197,197,249,129,254,128,-1:rem *** @ ***
6450 data 129,130,130,130,130,130,128,129,128,128,-1
6455 rem ********* lower case *********
6500 data 200,164,164,148,248,128,128,-1:rem *** a ***
6550 data 129,130,130,130,129,130,128,-1
6600 data 130,255,136,132,132,136,240,128,-1:rem *** b ***
6650 data 128,131,129,130,130,129,128,128,-1
6700 data 240,136,132,132,136,128,-1:rem *** c ***
6750 data 128,129,130,130,129,128,-1
6800 data 240,136,132,132,137,255,128,128,-1:rem *** d ***
6850 data 128,129,130,130,129,131,129,128,-1
6900 data 240,168,164,164,168,176,128,-1:rem *** e ***
6950 data 128,129,130,130,130,129,128,-1
7000 data 132,254,133,129,128,-1:rem *** f ***
7050 data 130,131,130,128,128,-1
7100 data 176,200,200,200,200,176,136,128,-1:rem *** g ***
7150 data 141,146,146,146,146,140,128,128,-1
7200 data 130,255,144,136,136,240,128,128,-1:rem *** h ***
7250 data 130,131,130,128,130,131,130,128,-1
7300 data 144,250,128,128,-1:rem *** i ***
7350 data 130,131,130,128,-1
7400 data 136,253,128,-1:rem *** j ***
7450 data 144,143,128,-1
7500 data 130,255,160,208,140,132,128,128,-1:rem *** k ***
7550 data 130,131,130,128,131,130,130,128,-1
7600 data 130,255,128,128,-1:rem *** l ***
7650 data 130,131,130,128,-1
7700 data 136,252,136,132,132,248,136,132,132,248,128,128,-1:rem *** m ***
7750 data 130,131,130,128,130,131,130,128,130,131,130,128,-1
7800 data 136,252,136,132,132,248,128,128,-1:rem *** n ***
7850 data 130,131,130,128,130,131,130,128,-1
7900 data 240,136,132,132,136,240,128,-1:rem *** o ***
7950 data 128,129,130,130,129,128,128,-1
8000 data 132,252,132,132,132,136,240,128,-1:rem *** p ***
8050 data 144,159,129,130,130,129,128,128,-1
8100 data 240,136,132,132,132,252,132,128,-1:rem *** q ***
8150 data 128,129,130,130,129,159,144,128,-1
8200 data 136,252,136,132,132,128,-1:rem *** r ***
8250 data 130,131,130,128,128,128,-1
8300 data 152,164,164,164,200,128,-1:rem *** s ***
8350 data 129,130,130,130,129,128,-1
8400 data 132,255,132,128,128,128,-1:rem t ***
8450 data 128,129,130,130,129,128,-1
8500 data 132,252,128,128,132,252,128,128,-1:rem *** u ***
8550 data 128,129,130,130,130,129,130,128,-1
8600 data 132,156,228,128,228,156,132,128,-1:rem *** v ***
8650 data 128,128,128,131,128,128,128,128,-1
8700 data 132,156,228,128,224,152,224,128,228,156,132,128,-1:rem *** w ***
8750 data 128,128,128,131,128,128,128,131,128,128,128,128,-1
8800 data 132,140,212,160,212,140,132,128,-1:rem *** x ***
8850 data 130,131,130,128,130,131,130,128,-1
8900 data 132,156,228,128,228,156,132,128,-1:rem *** y ***
8950 data 144,136,132,131,128,128,128,128,-1
9000 data 140,196,164,148,140,128,-1:rem *** z ***
9050 data 131,130,130,130,131,128,-1
9100 data 144,238,129,129,128,-1:rem *** [ ***
9150 data 128,129,130,130,128,-1
9200 data 144,254,145,130,128,192,128,-1:rem *** £ ***
9250 data 130,131,130,130,130,129,128,-1
9300 data 129,129,238,144,128,-1:rem *** ] ***
9350 data 130,130,129,128,128,-1
10100 rem ******* upper case ********
19300 data 128,192,176,172,163,172,176,192,128,128,-1:rem *** a ***
19350 data 130,131,130,128,128,128,130,131,130,128,-1
19400 data 129,255,137,137,137,150,224,128,-1:rem *** b ***
19450 data 130,131,130,130,130,129,128,128,-1
19500 data 252,130,129,129,129,130,128,-1:rem *** c ***
```

```
19550 data 128,129,130,130,130,129,128,-1
19600 data 129,255,129,129,129,130,252,128,128,-1:rem *** d ***
19650 data 130,131,130,130,130,129,128,128,128,-1
19700 data 129,255,145,145,185,131,128,128,-1:rem *** e ***
19750 data 130,131,130,130,130,131,128,128,-1
19800 data 129,255,145,145,185,129,131,128,-1:rem *** f ***
19850 data 130,131,130,128,128,128,128,128,-1
19900 data 252,130,129,129,161,227,160,128,-1:rem *** g ***
19950 data 128,129,130,130,130,129,128,128,-1
20000 data 129,255,145,144,145,255,129,128,-1:rem *** h ***
20050 data 130,131,130,128,130,131,130,128,-1
20100 data 129,255,129,128,-1:rem *** i ***
20150 data 130,131,130,128,-1
20200 data 128,129,255,129,128,-1:rem *** j ***
20250 data 144,144,143,128,128,-1
20300 data 129,255,145,168,197,131,129,128,-1:rem *** k ***
20350 data 130,131,130,128,130,131,130,128,-1
20400 data 129,255,129,128,128,128,128,-1:rem *** l ***
20450 data 130,131,130,130,130,131,128,-1
20500 data 129,255,135,152,224,128,224,152,135,255,129,128,128,-1:rem *** m ***
20550 data 130,131,128,128,128,131,128,128,128,131,130,128,128,-1
20600 data 129,255,131,140,176,129,255,129,128,-1:rem *** n ***
20650 data 130,131,130,128,128,131,131,128,128,-1
20700 data 252,130,129,129,129,130,252,128,-1:rem *** o ***
20750 data 128,129,130,130,130,129,128,128,-1
20800 data 129,255,161,161,161,146,140,128,-1:rem *** p ***
20850 data 130,131,130,128,128,128,128,128,-1
20900 data 252,130,129,129,129,130,252,128,-1:rem *** q ***
20950 data 128,129,130,134,138,137,137,128,-1
21000 data 129,255,153,169,201,134,128,128,-1:rem *** r ***
21050 data 130,131,130,128,130,131,130,128,-1
21100 data 134,137,145,161,195,128,-1:rem *** s ***
21150 data 131,130,130,130,129,128,-1
21200 data 131,129,129,255,129,129,131,128,-1:rem *** t ***
21250 data 128,128,130,131,130,128,128,128,-1
21300 data 129,255,129,128,128,129,255,129,128,-1:rem *** u ***
21350 data 128,128,129,130,130,129,128,128,128,-1
21400 data 129,135,153,224,128,224,153,135,129,128,-1:rem *** v ***
21450 data 128,128,128,128,131,128,128,128,128,128,-1
21500 data 129,135,185,192,185,135,185,192,185,135,129,128,-1:rem *** w ***
21550 data 128,128,128,131,128,128,128,128,131,128,128,128,128,-1
21600 data 129,131,237,144,237,131,129,128,-1:rem *** x ***
21650 data 130,131,130,128,130,131,130,128,-1
21700 data 129,131,141,248,141,131,129,128,-1:rem *** y ***
21750 data 128,128,130,131,130,128,128,128,-1
21800 data 131,255,145,141,131,128,-1:rem *** z ***
21850 data 131,130,130,130,131,128,-1

40000 rem ****************************
40010 rem **** read back to space ****
40020 rem ****************************
40025 sp=0:a=po
40030 rem do
40035 :  a=a-1
40040 :  t=tp(a):b=bo(a)
40050 :  if ((b=128) and (t=128)) then sp=sp+1
40055 :  if ((b<>128) or (t<>128)) then sp=0
40060 :  if sp<>4 then goto 40110
40065 :    op=po:po=a
40070 :    for c=a to op
40080 :      ct(c-a)=tp(c)
40090 :      cb(c-a)=bo(c)
40100 :    next c
40110 :  rem end if
40112 :  if sp=4 and po>rm then sp=0
40115 if  ((sp<>4) and (a<>lm)) or (po>480) then goto 40030
40130 return
40200 rem ****************************
40210 rem **** put remainder back ****
40220 rem ****************************
40230 for a=po+4 to op
40240 :  tp(a-(po+4)+lm)=ct(a-po)
40250 :  bo(a-(po+4)+lm)=cb(a-po)
40270 next
40280 po=op-(po+4)+lm
40290 return
40400 rem ****************************
40410 rem ********* output ***********
40420 rem ****************************
40425 if po<=lm then goto 40465
40431 :  print#2,chr$(27);chr$(16);
40432 :  if lm>255 then print#2,chr$(1);
40433 :  if lm<255 then print#2,chr$(0);
40436 :  if lm>255 then print#2,chr$(lm-255);
40437 :  if lm<255 then print#2,chr$(lm);
40439 :  if cn=1 then print#2,chr$(26);chr$((480-(480-rm)-po)/2);chr$(128);
40440 :  for count=lm to (po-1)
40450 :    print#2,chr$(tp(count));
40460 :  next count
40465 rem end if
```

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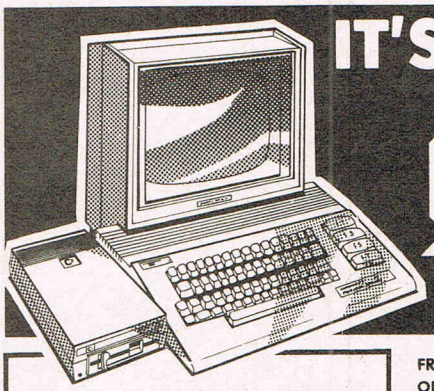

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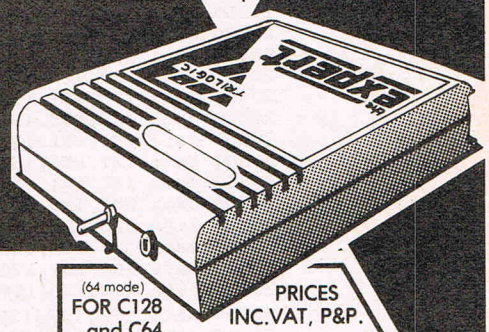

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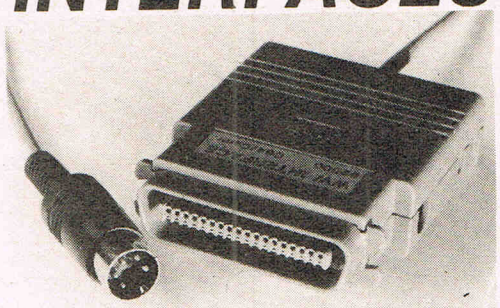

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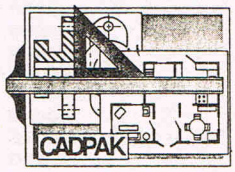

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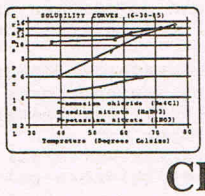

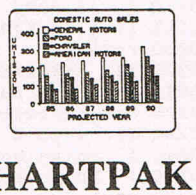

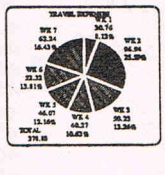

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```
40470 print#2,chr$(13);
40474 if po<=lm then goto 40515
40475 :  print#2,chr$(27);chr$(16);
40476 :  if lm>255 then print#2,chr$(1);
40477 :  if lm<255 then print#2,chr$(0);
40478 :  if lm>255 then print#2,chr$(lm-255);
40479 :  if lm<255 then print#2,chr$(lm);
40480 :  if cn=1 then print#2,chr$(26);chr$((480-(480-rm)-po)/2);chr$(128);
40490 :  for count=lm to (po-1)
40500 :    print#2,chr$(bo(count));
40510 :  next count
40515 rem end if
40520 print#2,chr$(13);
40521 li=li+1
40522 if li<>45 then goto 40527
40523 :  print#2,chr$(13);chr$(13);:pa=pa+1:if pn=1 then gosub 40800
40524 :  if pn<>1 then print#2,chr$(13);chr$(13);chr$(13);chr$(13);
40525 :  li=0:close 2:input z$
40526 :  open 2,4:print#2,chr$(8);chr$(13);chr$(13);
40527 rem end if
40530 return
40600 rem ****************************
40610 rem ****** special chars *******
40620 rem ****************************
40630 if asc(a$)=188 then u1=1
40640 if asc(a$)=190 then u1=0
40650 if asc(a$)=169 then db=1:a=128:b=128
40660 if asc(a$)=223 then db=0
40670 if asc(a$)=13 then gosub 40400:po=lm
40680 if asc(a$)<>128 then goto 40730:rem begin
40690 :  if asc(a$)=13 then goto 40720
40700 :    get#1,a$:co$=co$+a$
40710 :  goto 40690
40720 :  gosub 60000
40730 rem end if
40740 return
40800 rem ****************************
40810 rem ******* number page ********
40820 rem ****************************
40830 pa$="-- PAGE "+str$(pa)+" --":pp=po:po=lm
40840 for z=1 to len(pa$)
40845 :  wi=0:co=0
40850 :  a$=mid$(pa$,z,1)
40860 :  poke 63,(asc(a$)*100) and 255:rem set line number for restore
40862 :  poke 64,int((asc(a$)*100)/256):rem set line number for restore
40865 :  sys 49152:rem restore to line number as above
40870 :  read a
40880 :  if a=-1 then goto 40920
40890 :    tp(po)=a:wi=wi+1:po=po+1
40900 :    read a
40910 :  goto 40880
40920 :  read a
40930 :  if a=-1 then goto 40970
40940 :    bo((po-wi)+co)=a
40950 :    read a:co=co+1
40960 :  goto 40930
40970 next
40980 cn=1:gosub 40400:cn=0:print#2,chr$(13);chr$(13);:wi=0:po=pp
40990 return
50000 rem ****************************
50010 rem ******** initialise ********
50020 rem ****************************
50021 print "      PRINTOUT FOR COMMODORE PRINTERS"
50022 print "      ______________________________"
50023 print:print spc(10);"(C) D. Anderson 1986"
50024 print:print
50030 input "Name of file ";file$
50040 print:print
50050 print"Page numbering (Y/N) ";
50060 get a$:if a$="" then 50060
50070 if a$="y" or a$="Y" then pn=1
50071 if a$<>"y" and a$<>"Y" then pn=0
50075 print:print:print "Please wait.....";
50080 return
60000 rem ****************************
60001 rem *** easy script command  ***
60002 rem ***         (f3)          ***
60003 rem ****************************
60010 if left$(co$,4)="*cn1" or left$(co$,4)="*CN1" then cn=1:co$="":return:rem
centering on
60015 :
60020 if left$(co$,4)="*cn0" or left$(co$,4)="*CN0" then cn=0:co$="":return:rem
centering off
60025 :
60027 rem *** set left margin ***
60030 if left$(co$,3)<>"*lm" and left$(co$,3)<>"*LM" then goto 60070
60032 :  if asc(mid$(co$,4))=32 then d=5
60033 :  if asc(mid$(co$,4))<>32 then d=4
60040 :  l$=mid$(co$,d,1)
60050 :  r$=mid$(co$,d+1,1)
```

```
60055 :  if asc(r$)<=57 and asc(r$)>=48 then lm=6*(val(l$)*10+val(r$))
60060 :  if asc(r$)>57 or asc(r$)<48 then lm=6*val(l$)
60065 :  po=lm
60070 rem end if
60075 :
60077 rem *** set right margin ***
60080 if left$(co$,3)<>"*rm" and left$(co$,3)<>"*RM" then goto 60120
60082 :  if asc(mid$(co$,4))=32 then d=5
60083 :  if asc(mid$(co$,4))<>32 then d=4
60090 :  l$=mid$(co$,d,1)
60100 :  r$=mid$(co$,d+1,1)
60105 :  if asc(r$)<=57 and asc(r$)>=48 then rm=6*(val(l$)*10+val(r$))
60110 :  if asc(r$)>57 or asc(r$)<48 then rm=6*val(l$)
60120 rem end if
60130 :
60135 rem *** forced page break ***
60140 if left$(co$,3)<>"*fp" and left$(co$,3)<>"*FP" then goto 60295
60150 :  if mid$(co$,4,1)=chr$(32) then d=5
60151 :  if mid$(co$,4,1)<>chr$(32) then d=4
60160 :  l$=mid$(co$,d,1)
60170 :  r$=mid$(co$,d+1,1)
60180 :  if asc(r$)>57 or asc(r$)<48 then fp=val(l$)
60190 :  if asc(r$)<=57 and asc(r$)>=48 then fp=10*val(l$)+val(r$)
60200 :  if fp<>0 or li<0 then goto 60240
60210 :    for a=1 to (45-li)*2
60220 :      print#2,chr$(13);
60230 :    next
60232 :    print#2,chr$(13);chr$(13);:pa=pa+1
60233 :    if pn=1 then gosub 40800
60234 :    if pn<>1 then print#2,chr$(13);chr$(13);chr$(13);chr$(13);
60235 :    close 2:li=0:print "図";:input z$
60236 :    open 2,4:print#2,chr$(8);chr$(13);chr$(13);
60240 :  rem end if
60250 :  if fp<0 or ((45-li)>fp) then goto 60290
60260 :    for a=1 to (45-li)*2
60270 :      print#2,chr$(13);
60280 :    next
60282 :    print#2,chr$(13);chr$(13);:pa=pa+1
60283 :    if pn=1 then gosub 40800
60284 :    if pn<>1 then print#2,chr$(13);chr$(13);chr$(13);chr$(13);
60285 :    close 2:li=0:print "図";:input z$
60286 :    open 2,4:print#2,chr$(8);chr$(13);chr$(13);
60290 :  rem end if
60295 po=lm
60300 rem
61030 co$="":return

ready.
```

ATTENTION ALL PROGRAMMERS!!

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MPS803 — 4 months old. Spare ribbon. Owner wants to upgrade to NLQ. £100. Phone Ian 09592 2838 (Evens) (Nr. Sevenoaks).

CBM 3022 Printer was working but has component fault on main circuit board. Mechanically sound. Must be worth £45 to somebody. Tel: (0244) 675717.

CBM64 owners. Make your tape think its a disk. Reliable utility loads, saves and verifies at ten times normal speed. Cheques for £4.95 to G Moss, 472 Spring Road, Ipswich, Suffolk IP4 5LE.

Mouse and 1520 printer/plotter for CBM64. £30 each. For details Andy, 40 Haddington Road, Beaumont Park, Whitley Bay, NE25 9UY.

C64 owner wants to swap programs over the world. Disk only. Send list to, Eivind Antonsen, Tulipanvn 34, 1475 Finstadjoroet, Norway.

C64. Your basic programs compiled in to machine code. £3.00. Tape & Printout of basic program. Max 12K, tape only. U.D.G. grids. U.D.Gs £1.00 =60. C64/128 Printouts £1.00. Stuart Bassett, 1 Brookside, Rearsby, Leicester. Tel: (9774) 852.

Want to connect/teletype 43 printer to a 64 and/or +4 - What do I require? W Halford, 4 North Common, Weybridge, Surrey.

C64 originals for sale at cut prices. Send for full list of titles. Some titles free with others. Sean O'Kane, 72 Hampstead Park, L'Derry, N.Ireland BT48 7RY.

Wanted C64 penpals. Cass only. Write to, Ken Piller, Flat One, Rhodfa'R Ysgol, Llandysul, Dyfed, Wales SA44 9VV.

CBM64 Poke sheet issue 4. Pokes + Cheats on Kung Fu Master, Finders Keepers, Starquake, Int. Karate & much more. Send 30p + SAE to, S Moore, 68 Lightridge Road, Fixby, Hudds.

CBM 128 £200, fast 1570 disk drive £150, CBM 1701 monitor £150, all boxed as new except monitor C2N unit £20. Stack light pen £8.00. Tel: (0795) 79492 after 6. pm. Refer Mark.

Swap. Norwegian boy would like to swap games on tape. Send list to: Vidar Mortensen, 9713 Russenes, Norway.

Home software and games for C64. Exchange and sell from 50p to £10. Last news from the U.S.A. Bardetti Massimo, via G. Veroi, N.30, 20070 Castelnuovo B.A. (Milan), Italy.

Wanted. 1541 disk drive, will pay £80. Tel: Kenny on (0698) 458180. can collect up to 80 miles radius from Hamilton.

Exchange VIC20 +4 + cartridge games + super expander + 12 games + power supply for Plus/4. Tel: 884207 after 7 pm ask for Jim.

CMB64 owner would like penpals to swap software etc, write to Brian Sears, 7 St. Botolphs Road, Northfleet, Kent.

Exchange complete modern HF amateur radio station with CBM64 RTTY, for CBM128 with disk drive and monitor. Collect/Deliver up to 50 miles. Phone Mereside (073129) 403.

VIC20 hardly used. With or without power supply. Games cartridge. Cheaper than repair cost. Maximum offer £22. Good home needed. Offers to Riley 04302 - 3017.

Wanted Plus/4 and cassette unit must be in perfect working order. Phone after 7 pm 884207 or write Caretakers House, Wrotham School, Borough Green Road, Sevenoaks, Kent.

CBM64 + 1541 disc drive and over £1000 worth of original software for £500 ono. Will sell separate. Tel: 051-336-1711 after 7 pm.

MPS 801 printer brand new. Still boxed. genuine unwanted item purchased in a disk drive/printer pack. Suitable for CBM64 or 128. £95 ono. Tel: Cardiff (0222) 691174.

C64 tapes to swap or sell. Steve Davis, Highnoon, Cofuzion, Cybrotron, Kong Computer, Little People, Munch-Mania etc and other games. Norman, Tel: Chelmsford (0245) 83215.

CBM64 Poke sheet issue 3. Pokes on Paradroid, Kung Fu, Master, Hunchback, BMX Racers and much more. Send 30p + SAE to: S Moore, 68 Lightridge Road, Fixby, Huddersfield HD2 2HS.

CBM64, 1541, Drive and MT80 printer with interface, boxed as new with software, manuals and joystick. £400 ono. Tel: 01-654-7738, Evenings.

CBM64 with C2N Cassette unit plus DPS1101 Daisy Wheel printer plus Nordcraft Cartridge plus speech synthesis cartridge plus numerous games. £295. Tel: Jerry, 01-254-3016.

Help, I need the Plus/4 programmer's reference guide, can you help? Tel: Skegness 68711.

Plus/4 with cassette, joystick and 15 games £120 ono. Tel: R Milton, 01-319-1062 also VIC20 any offer considered.

Exchange my 480 channel CB Rig for CBM64 printer or disk drive or modem plus comms software. Tel: 021-744-6287 (Eve) 021-772-6981 (Day)

CBM64, as new, plus 1531 datasette plus over £200 worth of software including Uridium, Hardball, Game Killer, Currah Speech etc. All for £275 ono. Tel: 01-882-5999.

Commodore 16 capital cities quiz with personal printout orders for £3. Daniel Corby, 3 Goulton Road, Broomfield, Chelmsford, Essex. First Class Despatch.

Sale or swap. C64 and CBM monitor will sell for £225 or swap with cash for CBM SX64 portable. Any offer considered call 0204 694407, after 6 pm or weekends.

CNET modem with s/ware £30. Makro assembler cartridge £10. CBM assembler package £10. All in V.G.C. £45 the lot. Tel: 051-423-5493, between 6 pm - 7 pm.

CBM64 games Chartbusters and Fistful of Fun, 5 games on each cassette, both £6 or each £3.50. Also Havoc £2.50. Tel: 01-886-8876.

CBM64 software for sale. Mercenery £5.00 Elite £5.00. Back to the future £5.00 and many other games. Vizawrite

CLASSIFIED

64 for £25.00. Ring Keighley (0535) 664319 after 7.30 pm and ask for AKHTAR.

CBM MPS 801 printer for sale £80 also MPS 802 (NL2) printer for sale £150.00. Tel: 0602-846743. After 6.30 pm.

Australian 64'er wants to swap or sell programs. Have many programs on disk and cassette. Send disks or lists to: David Gee, 90 Hargreaves St, Bendigo, Victoria, 3550, Australia.

CBM64 modem plus 12 months compunet subscription. Unused. £75 easyscript and 6 games £15. Tel: Chorley 62826 after 6 pm.

Swap C2N datasette CBM Musicmaker and Designers pencil for any 5 of Elite Skyfox, Koronis Rift, Winter games, The Eidocon, Rambo, Supersonic, V, Silent Service, Paperboy or cash offers.

Electricians cable and power factor selector program for commodore 64 on cassette £8.95. Tel: 0271 77550 after 6 pm.

CBM64 or C16+4 users interested in Horse Racing who wishes to correspond SAE for quick reply: Brian Nobile, 28 Benarty Avenue, Crosshill, Fife, Scotland KY5 8AZ.

NEPA USA Trades. Over 3000 titles. Write to Ted Patterson, 145 Ramsey Avenue, Keansburg, N.J. 07734 USA.

C64 starter pack, still two months under guarantee + joystick and 36 originals including S.F's strip poker, G.A.C etc. worth £480, sell for £160 o.n.o. (phone after 5 pm) Tel. Stanton St. John 681

Plus 4 and C16 games for sale also help and map for mercenary second city send s.a.e. for details Mark Thacker, 9 Summerlea Road, Leicester, LE5 2GF

Latest C64 disk software wanted, to swap with blank disks. write to: Hazman, 53 Jalan Gasing, 4600 Petaling, Jaya, Malaysia. Tel. 03-7923-123 originals preferred.

Greek CBM-64 owner wants penpal write to: Dimitri Chalkias, Kefallinias 102str., Athens GR-112 51, Greece. Also, I would like t swap games for 128 with C-64 games from 1350 titles.

Commodore Communications Modem as new £55. 0908 582300

Sell Lord of the Rings (Book Instruction booklet, 2 cassettes) for £8 also the "Doubler" backup board + tape for £4 Jordan McClements, 19 Newcastle Road, Portaferry, Co. Down, BT22 1QQ

CBM 64 Pen-Pals wanted to exchange games mainly. Write to: Itamar Elhanany, Marshall plein 178, Rijswijk, Holland.

Wanted friends who have a C64 and are age 16 or 15. I would prefer people who live in the London area. If interested please phone Nick on 455-2586.

"Easy File" (disk) C64. Unused. Perils all offers considered Telephone (0382) 542200 after 6 pm.

VIC 20 games for sale including perils of willy, jump, jet, skyhawk, Matrix £1 each. Write to Christopher Mungall, 33 Kilnburn, Newport, Scotland DD6 8DE, for full list.

"Pet Column 80 for sale needs data recorder write to 41 Broadway, Greasby, Wirral, Merseyside, L49 2NQ".

Wanted C.C.I back issue! March 86, will pay £1.50p for it. Send for details to:- Mr A.R. Jones 8 Lovell Place, Rotherhithe, London, SE16 1QQ.

C64 Penpals wanted with D/Drive or cassette to swap info., tips, progs. Please write Paul 37 Oakfield Road, Bromborough, Wirral Merseyside.

Free Plastic library case when you buy 10 DS/00 discs £10.00 inclusive suitable C.B.M. cheques P/orders to P. Mangham, 6 Lincoln Street, York, YO2 4YR.

CBM-64, Modem, 1541, Mouse, Trackball, C2N Cassette, utilities, software, final cartridge, all boxed. Tel: 0786-823791, will split, (also SX-64) MPS-801 Printer, games, ask Shaun Tel 0786-823791

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Apple compatible to swap with Amstrad 6128 package includes monitor and drive, CP/M and 80-Col, plus software Hazman, 53 Jalan Gasing, 46000 Petaling Jaya, Selangor, Malaysia.

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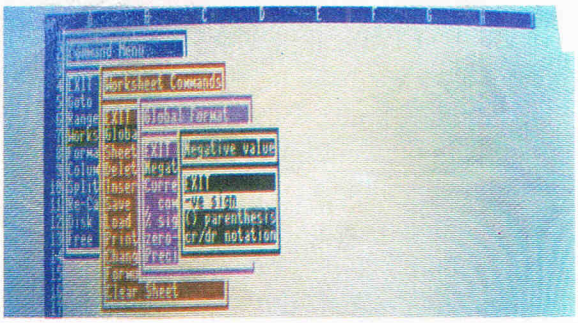

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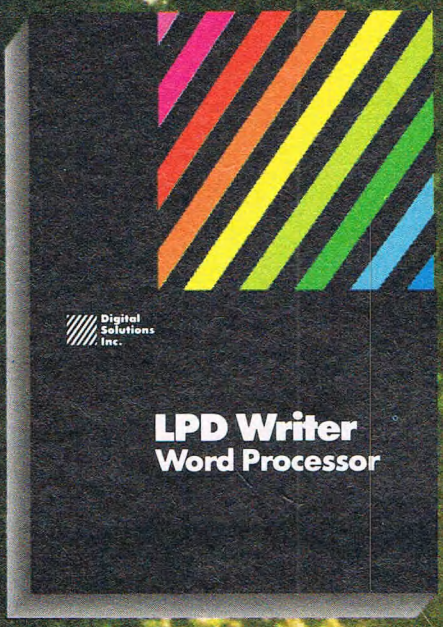

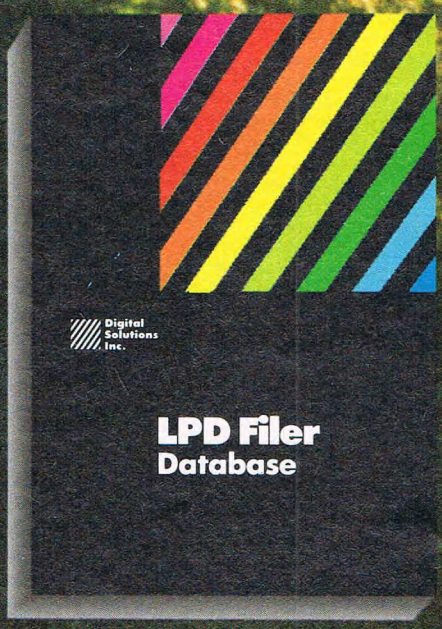

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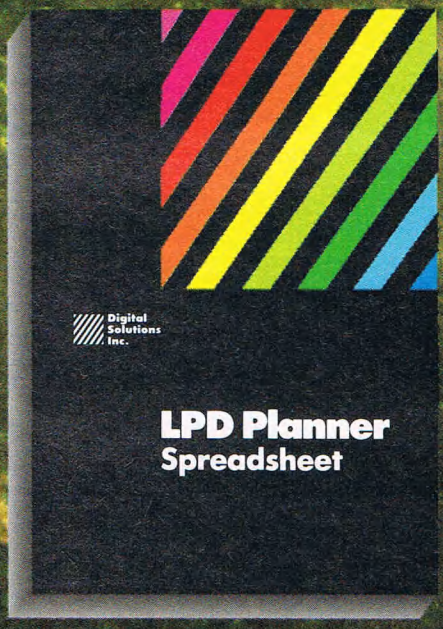

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more than one window can be opened on a specific database
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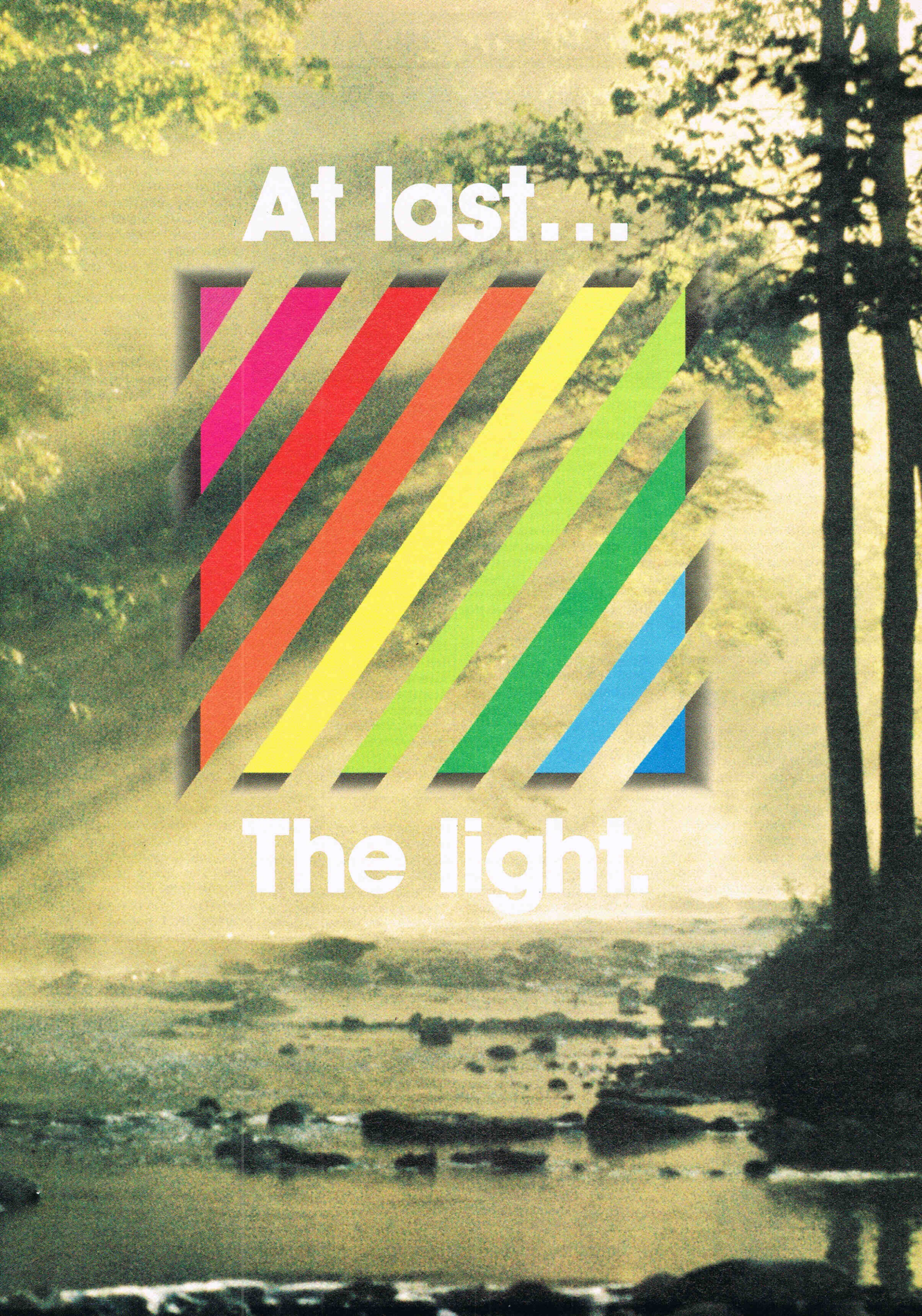

At last...
The light.

Supersoft take Pets

Following the closedown of Commodore's Corby factory, Supersoft have bought from Palan Electronics the bulk of the PET computers, disk drives, and printers that were up for sale.

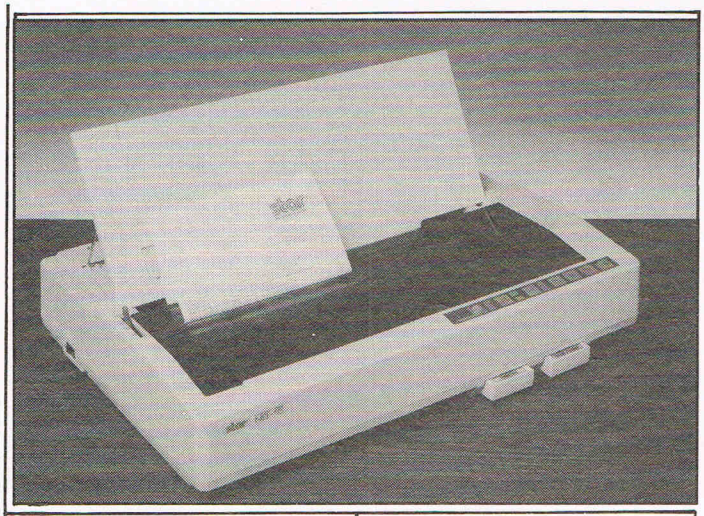
Several hundred new and used machines were involved, including a large batch of brand new 1361 dot matrix printers, and Supersoft have taken on a new warehouse in the Corby area to hold the stock.

One of the few companies still to support the PET, Supersoft still offer over two hundred different programs, add-on boards and other accessories for the PET range. Over the past 18 months Supersoft have been buying and selling reconditioned equipment on a small scale, mainly as a service to regular customers, since many Commodore business systems dealers have gone over to IBM or Apricot. However, following this purchase the supply of hardware will become a significant part of Supersoft's business.

Supersoft director Peter Calver, said "The Commodore PET still represents a large slice of our software turnover — I think we're the only software house that still regards it as a serious machine. We intend to make sure that PET users have a source of machines, spares, software, and service well into the 1990's."

Supersoft will be offering the equipment to both end-users and dealers, and as an initial step are writing to the thousands of PET owners who have bought from Supersoft since the company was founded in 1978.

Contact Supersoft 01-861 1166



New Star

STAR have introduced the NB-15. It is 300 cps draft and 100 cps letter quality. It has a friction and tractor feed, and semi-automatic paper loading. It also features down load characters — space for 128 individually created characters in draft or letter quality. The font cartridge system allows three different fonts to reside in the printer. And it has a 16K text buffer — the equivalent of around 8 pages of text. Another feature useful for programmes and trouble-shooting is a hex dump. It is PC compatible. £949.00 (+ VAT)

Showstopper

The Amiga was shown for the first time in Australia at PC 86 at Sydney. Without doubt, Amiga was the hit of the show, with over 22,000 people attending the Commodore stand over four days. In this period demonstrations were given every hour showing off the Amiga's capabilities to large crowds. One interesting aspect was that 80% of potential buyers were either current, or intending, PCXT owners. The reason for this was due to the Amiga's extended capabilities over the XT and the fact that Amiga can run ST applications. The net effect has been that Commodore Australia sold out of Amigas within the first week of releasing the computer and shortly thereafter had back orders exceeding 2,000 units. As supply has continued demand has strengthened. The company has secured distribution rights to many software packages from the USA to ensure that they can give customers Amiga solutions to problems.

Elephant News

Floppy disk manufacturer, Dennison, has announced two new additions to its Elephant Memory Systems brand of micro floppies. They are the EMS-MF-2 double sided 3.5 inch disk suitable for all disk drives with this specification and the EMS-12 high density double sided 5.25 inch, 96 tracks per inch, disk for use in the new generation IBM AT type machines and compatibles. The EMS-12 belongs to the category of disks often referred to, because of large storage capacity, as the 1.6 megabyte disk.

Both disks provide superior data protection made to above industry standards with every disk certified 100% error ad problem free with quality maintained for over 12 million passes. In addition, all disks are backed by the Dennison Lifetime Warranty.

The 5.25 inch floppies are supplied in 10's while the 3.5 inch disks come in boxes of 5. The unusual facility of being able to buy in smaller quantities has positive consumer appeal.

These two new additions complete the Elephant range of micro floppies which now comprises 8, 5.25 and 3.5 inch disks single and double sided and in single (48 tpi), double and quad density versions.

John Wise, Dennison's sales and marketing manager computer supplies and stationery, is confident that the timing of the ds 3.5 inch disk launch, in particular, is spot on. The disk is beginning to come into its own as the AMIGA gains popularity and when IBM begins to ship equipment using this system. At present, the 3.5 inch disk represents about 10% of the UK market.

Memory

Megastore has producted a 5¼ inch optical disk drive which has significant advantages over other optical products. As a complete subsystem, it comes with utility software and a library of routines written on Lattice C.

The system can direct read during write. It does this by having a series of lenses within the head of the drive which monitor the write process. Conventional Winchesters do a latency check. It also has a fast average access time of 130 milliseconds. In addition, the drive has the ability to select over 300 KB without stepping the optical head.

At £500, there is 400 MB of user data available on a doublesided cartridge. The system has the ability to update records at sector level.

Contact: Megastore, Erith (0322) 339922

Office Workstations has launched a new service called CD-Now. CD-Now supplies customers with everything for a 50MB Compact Disk Read Only Memory (CD Rom) system.

The company estimate that, for about £9,750, yu can build your own CD-Rom development system on a PC. It provides the software, the premastering services disk mastering and disk manufacturing in a single package. It is aimed at organisations who are considering CD-rom publishing, but have been alarmed by the cost.

Contact: Office Workstations (031) 652 2235

Wordcraft

Wordcraft International has produced a new version of its wordprocessing package, Wordcraft. Wordcraft Nova is aimed at the first time user and costs £150. All the commands and controls are the same as its predecessor and it can be upgraded to Wordcraft.

Contact: Wordcraft International (0206) 561608

Print Out

ELECTRONIC Printing Systems claims that its new laser printer can handle 10 pages per minute. The **EPS 1000** has been designed to tackle a paper load between 5,000 and 20,000 sheets per month.

The company also claims a number of firsts. These include a photocopying facility, also a larger paper handling capacity, to maintain work flow without interruptions. An optional sequencer is also available, to provide output that is collated ready for distribution.

Standard fonts in both landscape and portrait can be added and there's an electronic font switching and font downloading. This enables printing of 22 fonts in sizes ranging from six to 24.

Interface options are RS232C serial asynchronous, centronics or Dataproducts parallel, IBM 34/36/38 plus others.

Contact Electronic Printing Systems Fareham (03290) 221121.

PRINTER company **Epson** has added the **EX800**, a near letter quality and draft dot matrix printer to its range.

Selling at £505, the EX800 is an 80 column, nine pin printer which can print out up to 300 characters per second and 12 characters per inch. In near letter quality mode, the EX800 uses a 18 × 18 character print matrix. Epson says the EX800 is the first to allow NLQ printing in sub/superscript. Other print modes are normal, enlarged, condensed, emphasized, double strike, underlined and italic.

Print selection is made by using an eight key, back-lit panel on the front of the printer. It is also possible to select modes using software control or DIP switches on the back of the printer. There is also a self-test routine which prints out the dip switch setting as well as the characteer set.

The EX800 also includes an eight bit parallel interface and a serial RS232C interface, an 8KB input buffer expandable to 40KB and IBM compatibility under software control.

Contact:
Epson 01-902 8892.

DATA Distributors Limited is selling the **Seikosha MP-1300AI**, an 80-column dot matrix printer at £282. The MP-1300AI has a colour option; you add a clip-on, clip-off colour card and colour ribbon.

The machine has a newly-designed nine-pin print head. It can print in near letter quality at 50 characters per second and has a draft speed of 300 cps.

The printer is fully compatible with Epson FX and IBM PC and can handle single sheets or continuous stationery up to a maximum width of 10 inches.

Contact DDL Ascot (0990) 28921.

Amiga Bulletin Board

There is now a UK Bulletin Board for AMIGA users. Run by an organisation called Computer Supplies in Swansea, it is Bulletin AT — a FIDO board. It has already some useful public domain software and is looking towards a MBBC (Multiple Bulletin Board Conference) for the AMIGA, linking up with Norway and the USA.

Besides reviews and distributor information, there are also special offers on software.
Telephone: 0792 - 297845 (voice line outside hours)
Times: 6pm to 9pm weekdays; 24 hours weekends
Protocol: 8 bits 1 stop No parity
Speeds: 300/300; 1200/75; 1200/1200 (V21-22-23)

AMIGA Board

Another Bulletin Board has been announced. It is to be run through on Amiga users Group led by Trevor Seaton on behalf of the Cavendish Commodore Centre in Leicester.

The Board will be split into sections. The early ones will be free and the rest available on subscription to the Users Group. There will be a substantial amount of public domain software and advantages to users.

Times: 6 p.m. to 8 a.m. on 0533 550993.

Expanding memory

A program that lets programs treat hard disk drives and extended memory boards as if they were expanded memory has been announced by Tele-Ware West in California.

Above Disc, the package, allows users who do not have expanded memory boards to create large spreadsheets and databases when using programs that support the Lotus-Intel-Microsoft expanded memory specification (EMS).

CBM launches upgraded PCs

Commodore has launched new versions of its IBM compatible PC 10 and PC 20 micros

The PC 10 II and PC 20 II come complete with either mono or colour monitors and start in the UK at a price of £1,199 (exc VAT) for the 10 and £1,799 (exc VAT) for the 20.

Specification

The new machines' specifications include 512 K RAM as well as an AGA (Advanced Graphics Card). The 20 includes a 20Mbyte Winchester drive, while the 10 has twin double sided, double density 360 floppy drives.

Commodore's business market sales now account for some 50 per cent of the UK's business compared with five per cent in the past.

Game — for the Amiga

Activisions successful and critically acclaimed GAMEMAKER is available for the Amiga from September.

Gamemaker is an easy-to-use creativity tool which allows Amiga owners to create their own computer games — without having to learn complicated assembly languages — or spend frustrating months programming their ideas.

Using a joystick, the "designer" selects from a menu of commands to produce and animate characters and draw backgrounds, create sound effects and compose musical scores. All the components produced are then brought together.

The Gamemaker Computer Game Design Kit consists of: Spritemaker, Scenemaker, Soundmaker, Musicmaker and The Editor.

IBM Loses PC Market

According to Romtec, a leading UK market research organization, while IBM took half the PC market in the UK in the last quarter of 1985, its market share has fallen to 43.5% for the first half of 1986. Olivetti and Compaq, which had 44% and 23% respectively of the compatibles at the end of 1985 were down to 36% and 20% by the end of the second quarter of 1986.

Chinese PC's

China is planning to become self-sufficient in PC manufacturing. Through a campaign set up by the Chinese government, some 80% of the personal computers to be installed in the year 1990 will be manufactured in China. PC installations have more than doubled annually in China during the past five years.

COMMODORE BUSINESS AND AMIGA USER

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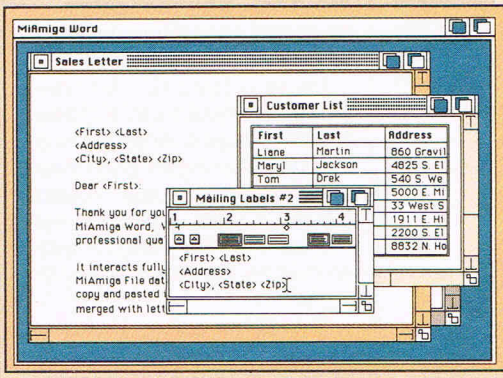

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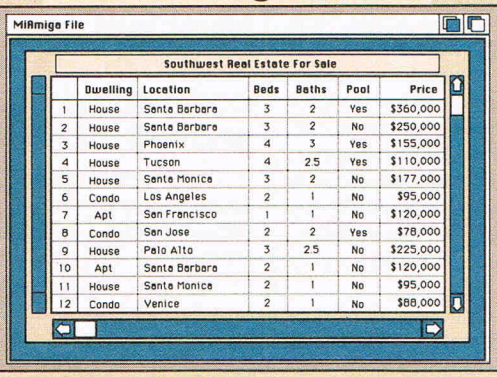
MiAmiga File

- Easily define column widths, placement and justification...
- Format numeric fields with commas, dollar signs, and/or decimals...
- Transfer quickly between full database and selected records...
- Transfer conveniently from selected record to data entry form...
- Print columnar reports from list including automatic page headings and cumulative totals...



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1	House	Santa Barbara	3	2	Yes	$360,000
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- Format mailing labels by positioning fields on form...
- Automatic scrolling of data within a field during data entry...
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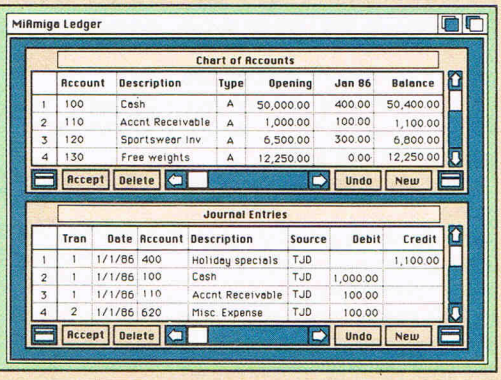
- Modify form as needed for convenient placement of data...
- Data entry form automatically created by system during database definition.

MiAmiga Ledger

- Easily define column widths, placement, and justification...
- Multi-window screen allows convenient access to both Chart of Accounts and Journal Entries...
- Edit/Post of Journal Entries to Chart of Accounts...
- User-definable Chart of Accounts...
- Transfer quickly between full GL database and selected records...
- Zoom feature automatically expands windows to full screen size.
- Print columnar reports from list including automatic page headings and cumulative totals...
- Format numeric fields with commas, dollar signs, and/or decimals...
- 12 months of prior balance info maintained for each account...
- Both current period and fiscal year-end close... Follows standard accounting practices...
- User-definable custom reports and a full set of standard GL reports.



	Account	Description	Type	Opening	Jan 86	Balance
1	100	Cash	A	50,000.00	400.00	50,400.00
2	110	Accnt Receivable	A	1,000.00	100.00	1,100.00
3	120	Sportswear Inv	A	6,500.00	300.00	6,800.00
4	130	Free weights	A	12,250.00	0.00	12,250.00

	Tran	Date	Account	Description	Source	Debit	Credit
1	1	1/1/86	400	Holiday specials	TJD		1,100.00
2	1	1/1/86	100	Cash	TJD	1,000.00	
3	1	1/1/86	110	Accnt Receivable	TJD	100.00	
4	2	1/1/86	620	Misc. Expense	TJD	100.00	

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MI-AMIGA

MI-AMIGA FILE is a database management system (DMS) for the AMIGA using the INTUITION user-interface. INTUITION, for the benefit of those who have not seen it, is in very simple terms the graphic system overlaying the main operating system of the machine. The WORKBENCH provides the primary environment of INTUITION and uses many of INTUITION's elements such as disk icons, gadgets and windows. INTUITION is very highly rated by users and programmers alike for providing a stable, robust and creative vehicle and does not suffer from the limitations endemic in Digital Research's GEM, which amongst other things is extremely limited in the number of windows it can support. Microsoft's much vaunted WINDOWS is also rapidly accumulating a reputation for being difficult to use and program — a complete contrast to INTUITION.

Database management provides for the collection, storage and collation of user data whether in numeric, character or alphanumeric form. The collation process extends to manipulation of the data by indexing and comparison together with the user defining the form of output to printer or screen. The basic elements of operation in a DMS are the *field, record* and *file*. Using the ubiquitous card index as an example, a card in a book library would have the book's title, author's name and classification code entered into *fields*. The *fields* would be entered on the card which in turn would be called a *record* and the collection of cards would be named a *file*. The structure of the *fields* do not have to be identical, for example the library card would have the book title and author in character form whilst the classification code would be in numeric form.

The MI-AMIGA FILE is supplied on a single disk which can be readily transferred to hard disk. A 60 page manual covering vitually all of the points of using the product completes the package. The manual is both very easy to read and follow — perhaps lacking a little in substance, or maybe this is a personal thing having been used to the solidity and weight of MS-DOS and UNIX DMS manuals! A plus point of MI-AMIGA FILE is it's ability to support additional RAM — this has the benefit of much faster file manipulations since most, if not all, of the file can be held in memory rather than on disk. MI-AMIGA FILE provides for no less than 8 different types of field together with a maximum of 32 fields per record which allows the system designer excellent flexibility in constructing a database. The field types are **alpha, amount, date, text, time, yes/no, phone** and **alphanumeric** with a maximum of 64 characters per field where appropriate. Thus an average application containing 32 fields would hold just under 2000 characters per record.

An **alpha** field is either text or space characters whilst **amount** is obviously meant for financial data as it supports dollar signs, commas and 2 decimal places. The AMIGA keyboard supports the English pound sign but not other currencies. The **date** field is fixed to the USA-only format of the U.S dollar and MM/DD/YY and the **text** field is any keyboard character, text or numeric and hence is the most commonly used field. The **time** field allows entry in either 24 hour clock snytax, i.e. HH:MM or in 12 hour format AM or PM. The **phone** field is a variation on the **alpha** field in that it will accept numbers only together with certain other characters such as brackets, hyphens and fullstops whilst the remaining fields, **alphanumeric** and **yes/no** are self-explanatory.

A field can be added or deleted any where within a record without concern about the fate of the contents if the field exists — the contents are simply dumped. The appearance of a record may be in a row and column format:-
The design of the form is left to the user and fields can be placed anywhere on the screen, there are no restrictions on where the field types are to be placed within a record. Using the form option is very useful for dealing with data input from an unskilled user. In addition to removal and deletion of a field, the field

MI-AMIGA

width may altered or contents justified to the left, right or centre — very useful in crowded screen layouts. Although it is **not** necessary to place all the fields of a record within the confines of an individual screen, a horizontal scroll will reveal further portions if desired.

Printer Output

User input is very well handled with the scroll bars of INTUITION being put to very effective use and also the TAB key serving to retrieve the last record for editing of errors. Another useful feature is the *Auto Capitalise* which will make the first text character of a field entry a capital.

Information about the file status is very comprehensive and will display the name of the file, number of records, file space unused, average record size in characters and approximate record capacity within the file. Printer output is also handled in the same easy manner. The printer to be used is that defined in the user's PREFERENCES file within the WORKBENCH. Once more the user can design the layout of the printed output by moving the fields around in any order to arrive at their requirements.

Since it is very easy to add further fields and temporarily or permanently delete fields, the customising of mailing lists can be very fast indeed. The printed output can be sent to an 80 column or 132 column printer. Output can also be sent to an ASCII disk file for operation with other applications such as **SCRIBBLE!** word processor, **ANALYZE!** spreadsheet or an electronic mail link via modem. Although the manual makes no mention of reading ASCII files back into MI-AMIGA FILE. It also took me some time to get into the habit of appending a .FLR suffix on saving a new file to disk. This suffix is used by the application to recognise a database file. Unfortunately if the user misses it out the first time aorund, the file fails to appear on the database directory. This can cause some consternation until it is realised that the file is actually present on the disk and the user must descend into AmigaDOS to rename the file with the suffix.

Sorting data is very much a strong feature of MI-AMIGA FILE. This can be accomplished through logical operators and ascending and descending columns as well as sorts of fields within a field. The records obtained in this manner can then be saved to disk or output to the printer although once more the manual makes no reference to this. The sorts themselves are commendably quick, I was never waiting more than a minute, even on very large sorting. Indeed most of the time the sorts were finished before I had realised it — just how much this has to do with the replacment of the 68000 cpu with a 68010 in my system is unknown.

MI-AMIGA FILE is not a relational DMS, it is a flat file system with the corresponding limitations these have. **It is fast and easy to operate with minimal time spent searching the manual.** What it lacks in the version I reviewed was insufficient explanation of all of its capabilities and a failure on the programmer's part to realise that the AMIGA is an international product going into markets outside of the USA i.e. the date format and dollar-sign-only currency choice. These are minor points, but should receive attention in the next version released. It is robust (no system crash experienced) and leaves me with the strong impression that it is a good solid product. **As an entry-level database for the AMIGA it is well worth buying.**

Supplier: Haba Systems Ltd.
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FELTHAM
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Tel. 01-751 6451
Price: £99.95

DELUXE VIDEO

Reviewed by Hugh Riley

This is the big one from Electronic Arts — the package that puts together thefull potential of Deluxe Paint, Print and Music. It doesn't generate sound or complex images itself but it will accept any IFF compatible sound and graphics files and combine them as video. Add to that a 3D text generator which can rotate, flip, expand and shrink, a framer utility which enables bit-mapped animation and a scene generator for automatic titles, pie charts and bar charts and you have a very powerful video tool.

There are three disks to the package. The master is the Deluxe Video Maker. The other two are utilities and demos. The master disk presents you with a 'video spreadsheet'. The video is represented on screen as a track, analogous to a sound track or a film track, divided along its length into 22 second sections. On this track are placed icons representing the scenes which make up the video. Movable arrows mark the beginning and end of each scene. Clicking the mouse on the icon brings up a new window which contains the scene script, again shown as a track the length of the scene.

The system is quickly mastered. It makes a highly complex program simple to use and the visual effects are extremely impressive. Full screen pictures can be faded in and out or wiped from one to the other in six different directions, while expanding, shrinking or breaking into the screen. Parts of pictures, saved as brushes under Deluxe Paint, can be moved around the screen, resized or colour-cycled. These 'objects' can be made to leave a trail or fade out. They can be 'stamped' into the picture when they reach their destination and become part of the background.

Animation is made easy with the 'framer' utility. The intermediate stages of a sequence drawn on a graphics package are put together to form one animated object which can then be treated like any other.

Music and sound effects are laid down onto the tracks in the same way as graphics from sound files generated by a music program or digitised sound in IFF format. They can be modified within the video for volume, rate and tempo. The duration of all graphics and sound effects can be altered at any point.

In addition to treating graphics from other sources Deluxe Paint can generate video images within itself. A plain background can be filled in any one of 8 patterns, in any one of 4 colour modes — including reversed bit pattern and inverse video.

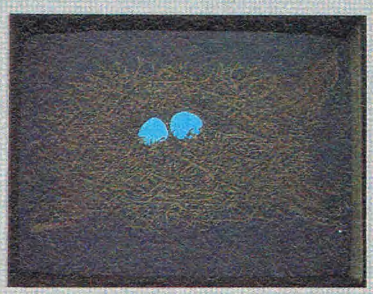
There are two powerful text generators. Text line enables you to use any of the system fonts in normal, shadow, underline, bold and italic. Polygon text is 3 Dimensional. Whatever you type in can be resized throughout the video or rotated through any axis. Letters can be in shadow, outline and italic as well as standard format and can be filled with any of 8 patterns in any colour. In addition to alphanumeric characters, polygon text includes a selection of geometric polygons that can be treated in the same way as text.

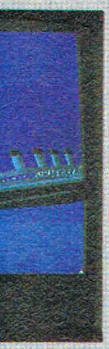
The scene generators provide some automatic graphic displays. Information typed into a requester is displayed in the form of animated pie charts, bar charts, credit and title scenes. These are a little crude, but they do provide a starting point for your own productions.

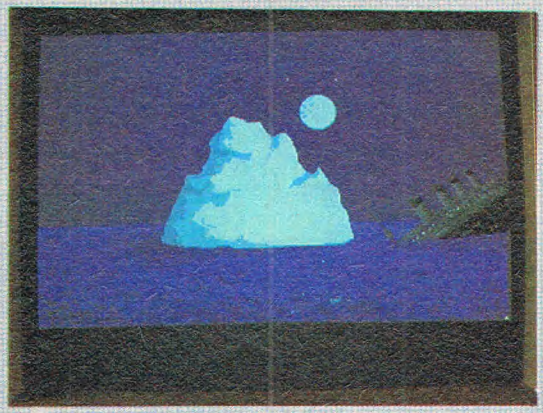
While assembling a video it can be viewed at any point. On screen is a representation of a video remote control and with this you can play forward, back, fast forward, fast reverse or cycle or watch the video frame by frame in either direction. A timer lets you know where you are on the track to make editing extremely accurate.

Dropping down onto video tape is made easier by having a selection of running speeds. Half and quarter speed enable a video recorder that can run at slow speed to make a smoother recording. 'Superslow' shows each frame at 1/30th second. this is the American standard video rate so by manually advancing computer video and video recorder it is possible to get very good results.

Virtually everything in the program is WIMP driven with extensive use of windowing to request information or to move objects about. When objects need to be placed or moved on screen they can be viewed with x and y coordinates







alongside for greater accuracy. Pictures can be loaded from disk and viewed before they are placed in the video.

There is a limitation here in that Deluxe Video supports a palette of only 8 colours. Obviously you can choose which 8 but it does mean that detail is reduced. In order to make files acceptable to the program you have the choice of 'best colour' or 'current palette' colours. Best colour uses the 8 most common colours in a picture. I found that most of my pictures looked much better than I expected when treated this way. Foreground objects can be in a different palette from a background picture. When an object is 'stamped' into the background, however, the background takes on the colour of that object.

Videos can be chained together to form one long video. The only limit is the size of th disk storage space. It is also possible to insert pauses of up to two & 3/4 hours in a video while the computer awaits a key press to restart. These two options come together in the command 'keychain' which provides the basis of interactive video. With each keychain command up to 10 different videos can be chained together with a particular key assigned to each one. It is possible, therefore, to branch conditionally on a key press to a new set of options. This type of program has obvious uses in education.

One of the utility disks contains two devices to improve your video editing. Unpack allows you to disassemble parts of existing videos — the demo for example — for use in other displays. Vidcheck compresses the video by removing unnecessary parts, so using less disk space. It also provides a print-out of the video file, to screen or printer, summarising the composition of the video. The framer is also on this disk along with several demonstrations.

The other disk contains the video player. This utility enables you to run a finished video without loading Deluxe Video. The player is not copy protected so it allows you to distribute your videos without difficulty.

Deluxe Video is full of effects that can be used in combination with each other. It is extremely easy to use once you have ploughed through the manual and its certainly the most useful animator that has arrived so far for the Amiga. It is expensive, as are all the Amiga tools at the moment, especially when, in order to use Deluxe Video to its optimum you also need a music generating program, a sound digitiser, a quality graphics package, a video recorder, genlock and camera, a frame buffer and a frame grabber. All of which is going to be wasted without at least a 2 megabyte expansion because otherwise your videos will always be in short bursts.

Apart fromthat it really is outstanding, a delight to use. The program is clearly laid out for you to see, you can run through it step by step, rewind, and edit with no trouble at all.

The packaging hypes up the product outrageously, especially as a professional/business tool. I don't think any of the moving graphics utilities are adequate for business use in themselves yet. But it's certainly enormous fun to create with and if standards keep rising like this we'll have some really amazing stuff before long. The AMIGA is really going to shake up our ideas of what is possible for graphics.

H.R.

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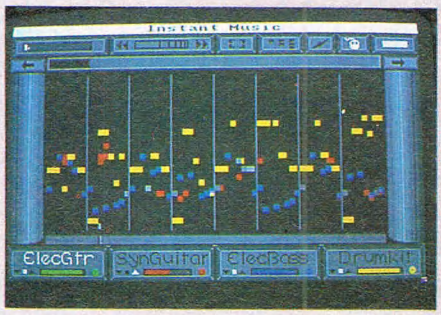
INSTANT MUSIC

Music and personal computers were made for each other. In making this very sweeping statement I speak as someone who received musical training at school and continues to play occasionally. Whilst it may be argued that a computer is actually a musical instrument in its own right — one only has to listen to musical style of Todd Rundgren or Jean-Michel Jarre — the ability of computers to assist in the compositional process is an acknowledged fact. This aid is shown in the form of access to an infinite variety of sounds. The speed of access is largely dependent on the hardware and software capabilities of the system as a whole and as many readers will appreciate, the AMIGA is not lacking in hardware facilities.

However, the creation of sound is only part of the process of composition and placing these waveforms into a pattern which we call music is the true art form which a computer can never hope to match — the machine has to be programmed at some stage by a human, musician or not.



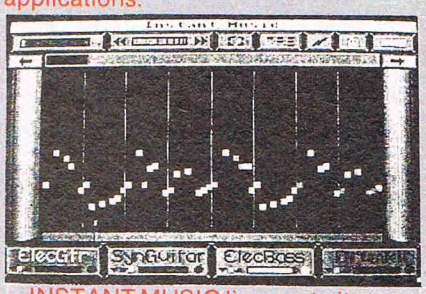
One of my dictionaries defines music as *"the science and art of beautiful sound"* which seems to me to be a fair and accurate summary. The sound capabilities of the AMIGA are without exageration beyond comparison amongst any of the current range of personal computers. Those who have listened to the sound output from an AMIGA in the hands of an user with musical experience through a good quality stereo system can testify to the validity of this. This highest problem to date has been software to support the machine. **MUSICRAFT** is the usual vehicle for demonstrating the sound of the AMIGA and although this piece of software is unfinished it has already achieved legendary status among those AMIGA owners who are fortunate enough to have an illicit copy. I think that despite MUSICRAFT holding the claim to be the most pirated software piece in the AMIGA catalogue — when the finished product is made available it will become an instant best-seller. It has already created its own market simply on the premises of what can be achieved with MUSICRAFT even in an unfinished condition!

INSTANT MUSIC from Electronic Arts provides the purchaser with a musical environment in which to experiment. It is not a compositional package in the classical sense of providing staffs, staves, crochets and quavers — rather more a template or stencil for the user to explore. I suppose the keyword to this software is *improvisation* since it allows the user limited compositional facilities together with direct real-time interaction with the sound using an input device, in this instance the mouse. I say *limited composition* since only the musical note patterns can be edited — the sound waveforms cannot. To achieve this the user must make additional purchases in the shape of sound-digitising firmware. The package is supplied on a single copy-protected (no comment!) disk together with a 55 page manual. Because of the copy protection I was able to verify the effectiveness of this software with additional RAM and a hard disk.

The manual is rather lacking in diagrams and is styled in the manner of using one continuous example, finished off with a reference section beginning about halfway through. I presume the lack of diagrams is due to the format of the package which formulates its own ideas on musical notation. I cannot comment on how this would affect a user who cannot read music and to whom a crochet means a bad-tempered 85 year old, but since I can read music and tend to think in terms of notes, sharps and flats, I found it difficult to follow at first. Eventually the peculiar notation began to fall into place. The program disk contains a number of *libraries* of pre-arranged songs and melodies for the user to play and modify in addition to several further libraries of instruments or *sounds* as the package terms them.

Underneath the front-end, INSTANT MUSIC uses conventional music techniques such as *harmonic voicing* and *diatonic pitching*. The former will ensure that whatever the user enters will play back pitched at the correct note within the context of the existing melody. Diatonic pitching is an extension of this and allows very rapid pitch changes over the full 6 octave range supported by the package. *Chords, melodies* and *scales* are all concepts recognised by INSTANT MUSIC as well as a number of rhythmic patterns. This is the key to whole package as its 'forte' is the ability to allow the user to *jam* or play along with the music, the AMIGA taking care of such mundane matters as pitching and timing the selected notes. The input device is the AMIGA mouse which gives a speedier response than the natural choice of the keyboard. Depending on how many of the 4 DMA (direct memory access) sound channels are in use at any given instant, a user-selected note may be played as chord — a very polished demonstration of the capabilities of the speed of the AMIGA's sound hardware. I mentioned earlier that the instruments could not be edited in terms of their waveform although they can be *transposed* meaning re-pitched or adjustments made to their individual volume. Careful use of these facilities can allow some very subtle texturing of the music output albeit in a limited form.

Editing of the musical rhythms extends to cut, paste and copy and there are no restrictions on the filing system relate to this. Despite the appearance on the requestor which indicated that a hard disk could be used as a storage device, this failed to operate — quite possibly because the syntax employed of "hd0:" is unrecognised by AmigaDOS,the correct format for a hard disk is "dh(unit number)". One particular positive point about the files generated by the package — they are in IFF format. This is the agreed *standard* AMIGA file format and allows portability between different applications.



INSTANT MUSIC lives up to its name. It is not designed as a deeply serious tool for musical development. In fact other than serving as the generator of IFF music files it merely scratches the surface of the machines capability. Nevertheless, at the price it costs INSTANT MUSIC is worth purchasing t give users some *feel* for the AMIGA sound a very big field indeed.

Supplier: Ariolasoft (UK) Ltd.
Price: £29.95

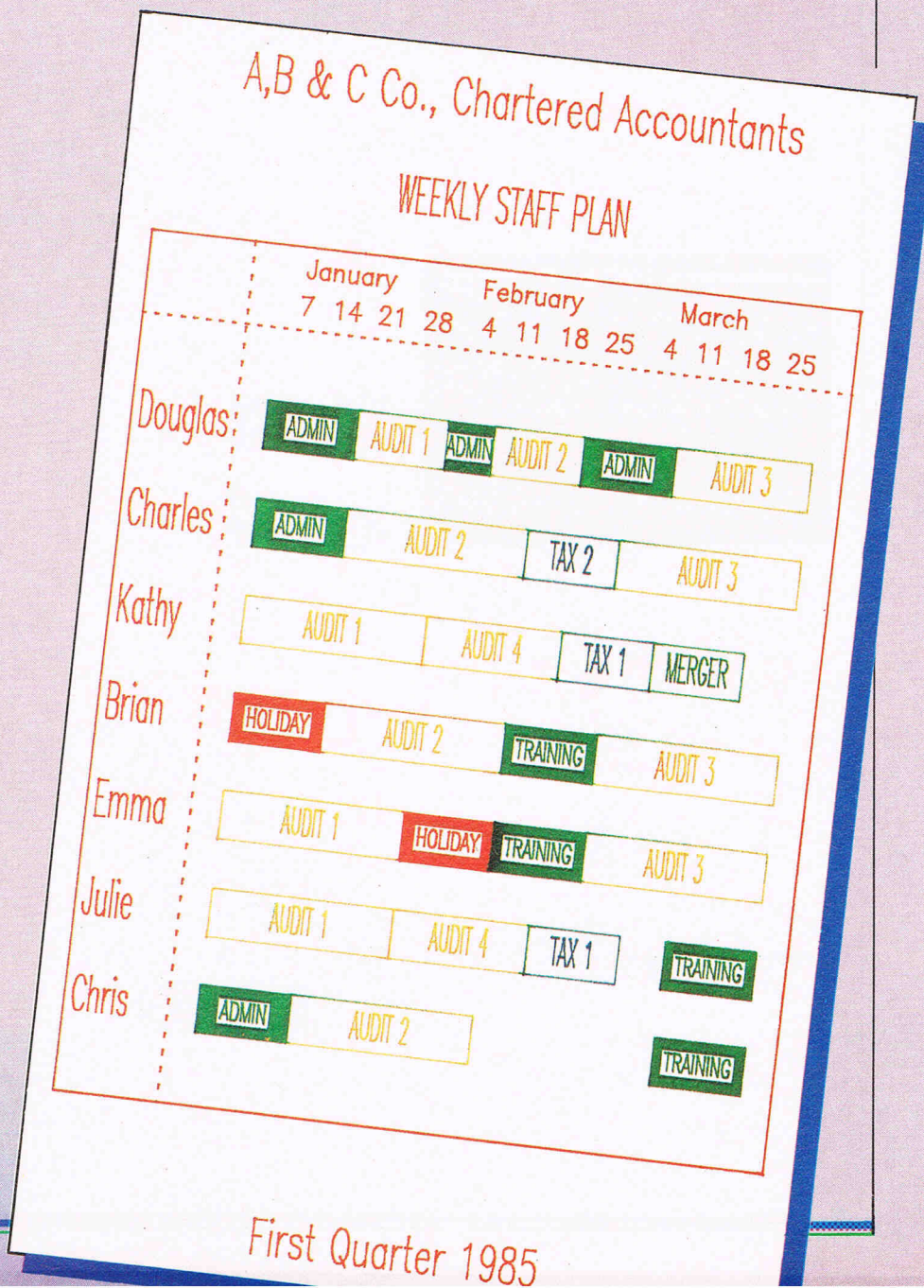
LOGISTIX

LOGISTIX from GRAFOX Ltd. is the first fully integrated business software to appear for the AMIGA in the UK — but what is *'intergrated software'* and what can it do? To understand the concept you have to look back to the bad old days of microcomputers in the late 1970's. The software product that brought micros to the attention of the so-called business users was VISICALC which was first implemented on the APPLE. This was a spreadsheet and removed the need for reams of ruled and lined paper for basic financial analysis and applications. It also allowed financial *'models'* to be created using ther *'what if I change this parameter'* approach which were very time-consuming and prone to user-induced errors. VISICALC spawned a whole generation of spreadsheet products such as SUPERCALC and MULTIPLAN which are still in use today.

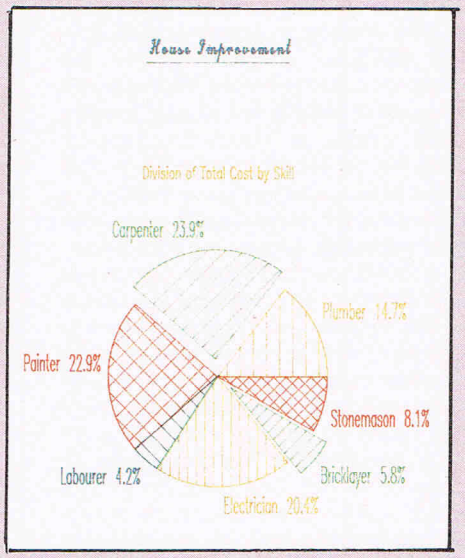
So if you could arrange numeric values in horizontal and vertical columnar form and manipulate these values then why not substitute packets of data for the numbers? The packets of data could be either numeric or characters or a mixture, which is termed alphanumeric — doing this brought about the birth of the database. Of course it should be realised that none of these ideas was totally new to the computer, but they were new to microcomputers since they breathed life into machines that hitherto were confined to the electronics hobbyist. This increase in the bandwidth of *'usefullness'* was further enhanced by the introduction of the wordprocessor. Thus by the start of the eighties three distinct software products were in place and coupled with declining hardware costs, increasing availability of support peripherals such as printers and disk drives, everything was in place for an explosive growth in demand.

Such rates of growth in terms of software product innovation could not be sustained and users and programmers alike began to look at the existing products to increase further the magic ingredient termed *'useability'*. One popular route taken was to increase the number of facilities available to the user beginning with a modicum of customisation followed quickly by programming the application to suit user requirements. Indeed, the programming element developed into a full-blown industry in its own right with the likes of the dBASE II database leading the way. However, programming is a skill that some users do not acquire through either inclination or time constraints and their requirements tend to be more concerned with the facilities available *immediately*. One such facility being graphics, another being the management of time resources.

Management of time has become the cornerstone of profitable business operations particularly the manufacturing or service industry environment. Contrl necessary in these industries can involve either equipment resources or manpower resources. Taking a typical UK High Street as an example. the *'hire outlet'* needs control over the items it intends to hire out to the public. The control consists of both database for the range of items in terms of details, costs, etc., and a customer details file. The two are linked by time control in the context of how long the item is on hire for, thus high demand (profitable) items can be quickly identified. Coupled this with



establishing a customer profile and the business is in a very healthy position to actively market itself and it's abilities as opposed to the usual waiting-for-them-to-walk-in approach. The *'hire outlet'* could be a video shop, office equipment, garage (a very under-rated profit opportunity), DIY tools, specialist clothing (bridal/dinner jacket), sports equipment. Time control of resources in a manufacturing environment assumes even more



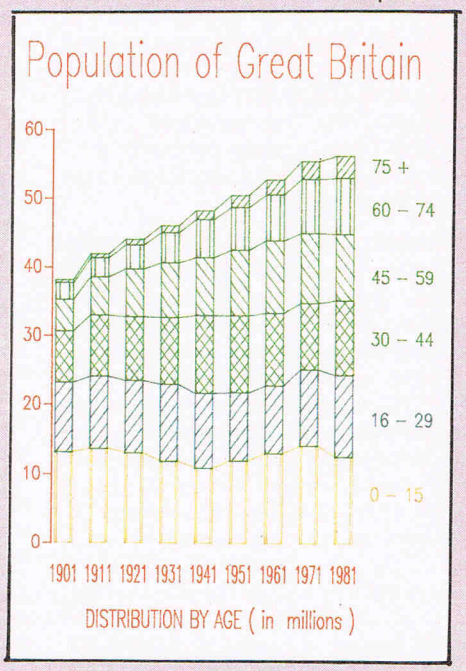
importance since the items concerned represent substantial sums of capital expenditure to the business. For example instant-printers, bakers, dry-cleaners, any type of electrical or mechanical repair facility, any activity involving the use of motor vehicles.

What I have tried to do is to present some ideas of using a product that combines all of these concepts of time control, spreadsheets and databases along with graphics. People being what they are find that a graphical representation of data, numeric or letter-based, can be assimilated more quickly. Therefore if you can absorb the data faster you can react to the implications more effectively and deploy your assets more profitably. LOGISTIX is just such a product to fulfil the requirements. It contains a spreadsheet for numeric projections and analysis, a timesheet for planning of resource assignments, a database for storing and retrieving information lists, together with graphical presentation in several forms of any of this data.

The LOGISTIX spreadsheet allows for 2,048 columns with 1.024 rows, a truly massive size. By using an advanced and intelligent memory management regime *all cells can be referenced* — something a lot of spreadsheets which claim to have large dimensions will not allow. LOGISTIX can operate from the Workbench or CLI and colour is given prominent support with the spreadsheet. A total of 7 colours in addition to the background colour provide the user with choices for the borders, cursor, rows, columns, protected cells and command character strings. The colours can be saved off as a separate file allowing some degree of recognition to the type of sheet in use if required.

I was particularly impressed with the degree of integration built into the product in terms of other software. For instance, files produced by LOTUS 1-2-3 or SUPERCALC could be read directly by LOGISTIX without the user being concerned about formats, references or function. Similarly, dBASE, DIF, CSV and ASCII files could also be read by LOGISTIX, thus removing any obstacle to user data portability. This also has the benefit of allowing the many users who have LOGISTIX implemented on MS-DOS machines to avoid the need for time-consuming and expensive re-training on the product.

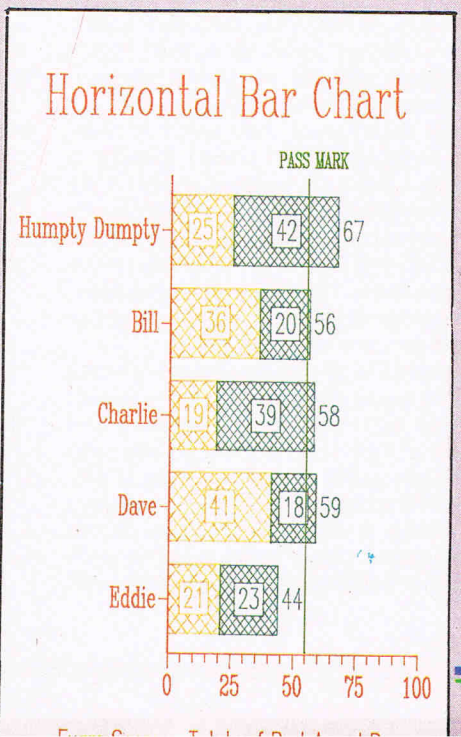
The spreadsheet output to the printer is automatically rotated sideways for sheets that are too wide for the printer



itself. The very wide printer range supported also includes colour printers and this provides the user with novel and effective output since italics, bold and underline modes, provided the printer can produce these. The AMIGA function keys play a large role in output control with no less than four keys devoted to screen control such as *page left* and *page right*. I particularly liked the way that four function keys were left undefined for use by the user although I felt that the use of key 'F1' for the very extensive online HELP was wasteful since the AMIGA has a dedicated 'HELP' key. The depth to which this HELP facility extended was astonishing — not only was it extremely well thought out but it made the use of the manual rather the exception than the rule. The HELP facility provides over 150 (!) screens thus you can appreciate my point.

The manual itself is both well-written and concise and avoids the LOTUS 1-2-3 trap of burying the user under excessive documentation. Besides, on-line help is generally a good deal faster than looking soemthing up. The LOGISTIX manual concentrates on just two things — a reference source and an explanation of the numerous example files. These are provided on one of the two disks supplied with the LOGISTIX package — the other disk forms the program disk. The disks themselves are unprotected although the program will only run with the supplied 'dongle' in one of the joystick ports. Although Grafox Ltd. the suppliers of LOGISTIX have seen fit to exercise their right to copy protect their product, I am happy that they have done it in the manner which I prefer, one which doesn't entail wrecking the user's disk drive. In fact the Grafox dongle is so inoffensive to the running of my AMIGA that it permanently resides in the port until the port is needed.

Replication is used heavily by any spreadsheet and LOGISTIX in addition to the conventional definition of this function also provides orthagonal replication which converts data from a row into a column and vice versa. The *Consolidation* feature allows data to be read in from other worksheets for a 'one-off' or permanent consolidation. One part of LOGISTIX which tends to be over looked by too many software authors was the provision of foreign character sets. For example, how many times have you used a product that failed to provide a currency option other than the dollar — both on the screen and in printed output? LOGISTIX provides support for



LOGISTIX
cont

ALL the major currencies in addition to accented characters. Recalculation routes can be altered and circular reference detection will report the cell involved.

There are a total of 74 built-in functions in LOGISTIX covering mathematical, logical, statistical, financial and calendar requirements. The modelling potential is enhanced through the availability of 2 variable *what-if* table constructions. Since LOGISTIX provides almost another high-level language in its own right through the ability to allow users to define *macros* from the keyboard, the number of potential functions is unlimited. These user-defined macros provide those with the skill unparalleled opportunities to customize this package. *Debugging* or error-removal can be a time-consuming business and LOGISTIX allows the macro designer single-step tracing and a *learn mode* which gives a display of the current macro line under execution conditions. Security of macros can be assured through password protected areas within the worksheet and since these macros can be extended to acceptance and placement of keyboard input coupled with customised help screens, LOGISTIX demonstrates just how powerful a tool it is.

The LOGISTIX Timesheet provides a flexible computerised *wall planner* where the time segments can be varied from half-hour intervals up to yearly intervals. The 10 year calendar can be edited to adjust the daily working hours, weekends and public holidays — ideal for applications involving shiftwork operation or batch production. A total of 2,048 resources can be controlled under a maximum of 1,023 time segments — if this is insufficient then another sheet can be created and linked through a macro. LOGISTIX also has a CRITICAL PATH ANALYSIS facility with automatic recalculation and display of the critical activities together with both *free floats* or *total floats*. This is yet another powerful feature for project management or batch process planning.

LOGISTIX allows the user to create a database using the familiar environment of rows and columns to form fields and records. The data in this area can then be manipulated using the classical database functions of indexing, sorting and searching. A very large database can be constructed using up to 2,048 records together with no less than 64 fields with full insertion or deletion facilities. I mentioned earlier the ability of LOGISTIX to accept files from other formats such as dBASE, this can be extended to extract data from these files selectively according to criteria defined within the worksheet.

Any of the previously described manipulation techniques such as spreadsheets or databases can ultimately be used as vehicles for the display of the data in graphical form. Data display graphics have moved a long way from the single colour multiple lines of years gone by to sophiscated Gantt charts, stacked bars and scattergrams all in glorious technicolour. LOGISTIX provides multiple or single pie charts, floating or stacked, clustered or linked, 3D percentage horizontal or vertical bars, lines, steps, ticks or scatter charts together with Gantt and text slides. The user can define 5 independent titles and 128 free-format annotation lines. With 9 character fonts and 10 different sizes on the screen or on the printout togeter with a multitude of additional output definitions, it is unlikely that with this degree of flexibility ANY user is going to be dissatisfied. The hardcopy output can be dot-matrix, laser printer or professional plotter since a very large range is directly supported.

The two primary markets for LOGISTIX are as a management tool and a decision aid. It is not difficult to learn and given the provision of copious online help, beginners can produce standup work very quickly. I found using LOGISTIX a pleasure, not a chore as with some software. Whenever I become unstick, without fail the manual rescued me. In fact the manual is such that I found I could read it as reference book and learn some new technique each time. Only one caveat at LOGISTIX which hopefully will be resolved on the next product update. This concerns the AMIGA mouse — curiously LOGISTIX does not support the mouse in any way, betraying the PC-DOS origins of the product. A mouse and a spreadsheet can can chug along very quickly, as I found with Analyze! (reviewed in the last issue of AMIGA USA) since the current cell can be selected much faster with the mouse than by using the cursor keys. Another point to consider with LOGISTIX concerns the AMIGA memory. Given the facilities of LOGISTIX it is a large program and consequently put a lot of pressure on the memory of the AMIGA. On a 512k machine this is manifest in the graphics as LOGISTIX will only provide a quarter screen graphics window — quite simply the machine is out of memory. This is not as serious as it sounds nor does it mean a system crash is about to happen, LOGISTIX is too robut for that. The answer lies in increasing the memory, a not uncommon requirement with integrated packages. Expanding the memory with a 2.0MB card to 2.5MB overcomes this problem of small graphic windows and the system disk contains 2 additional programs for those who have an expanded memory AMIGA. The first makes use of all the available memory whilst retaining the same display of 25 lines — the second program allows an extension to the number of horizontal lines to total 44 by introducing an interlaced display. Increasing the memory of an AMiGA is a wise move in any event and LOGISTIX takes full advantage.

LOGISTIX and a 2.5MB AMIGA makes for a *killer* combination in hardware and software terms. Couple this with extensive software support and the cost of the product represents extremely good value for money. This is one of the first of the so-called business *heavyweight* packages, i.e. integrated software for the AMIGA. I have a very strong feeling that it will retain it's position as leader in this field for a long time to come.

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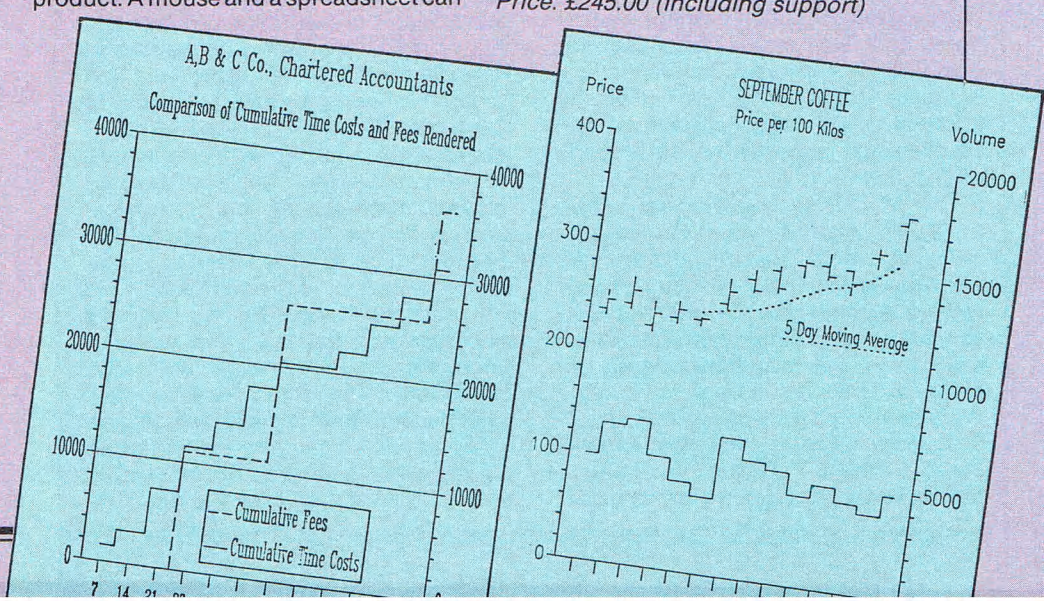

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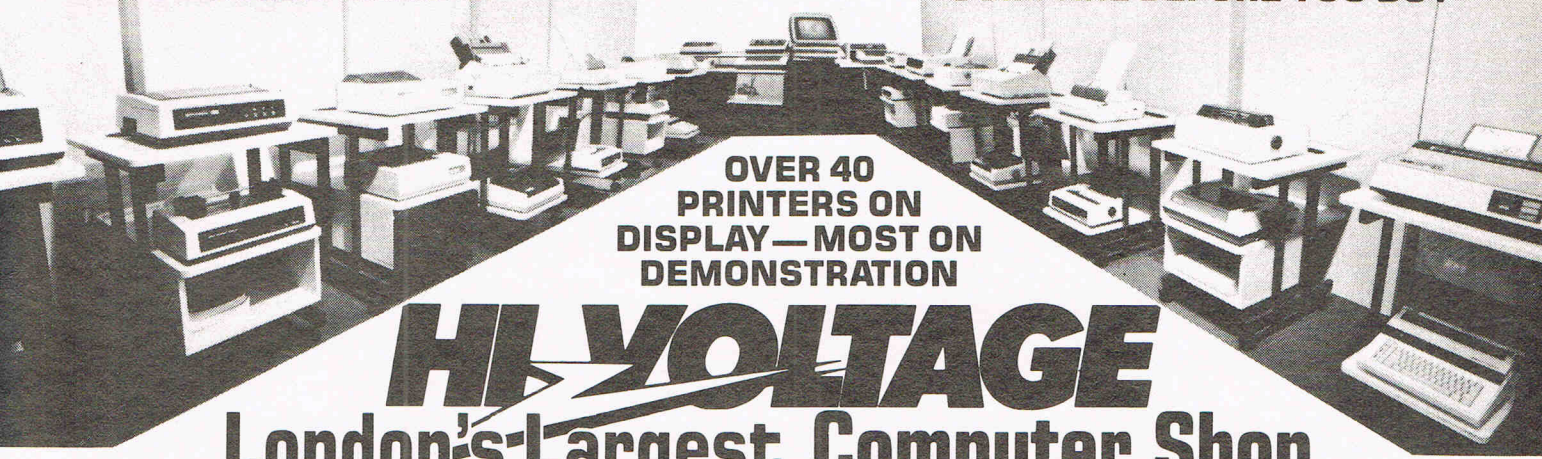

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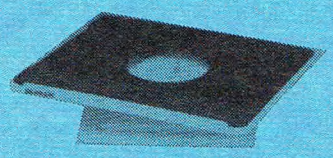

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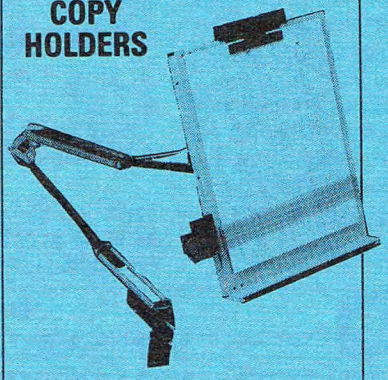

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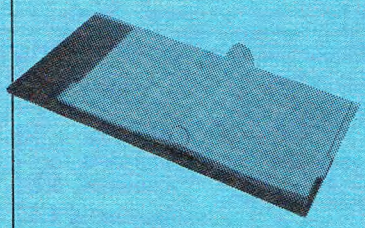

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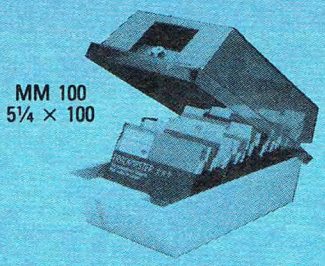
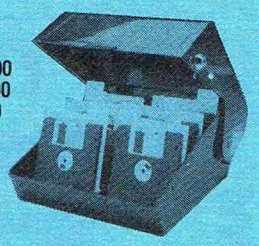
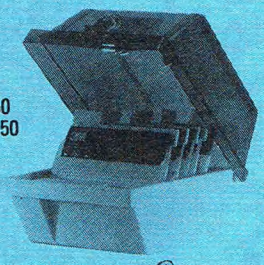


MM 100
5¼ × 100

MM 70
5¼ × 70



MM 6090
3½ × 90
3 × 60



MM 50
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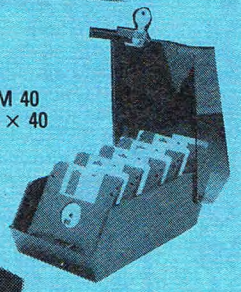

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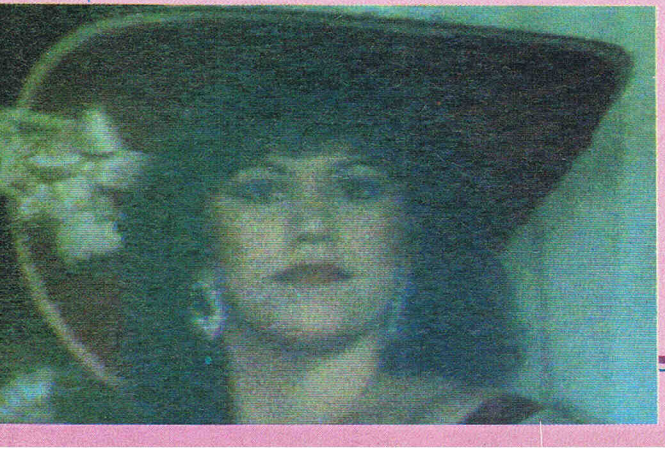
DIGI

AMIGA STYLE

Digiview has taken the lead in the AMIGA market for digitizing for three main reasons. First, it is simple to use; second it is very inexpensive; third, it has at present virtually no competition.

Video engineer Tim Jenison of Topeka, Kansas first created and produced Digiview in early 1986. After selling a few homemade ones, he found the demand built up rapidly and now has a manufacturing facility that is barely coping with the growing demand. Digiview — an unobtrusive white box, 8cm by 11cm, plugs into the parallel port of the AMIGA. There is no need for a separate power supply. You simply plug the video camera into the monitor to focus and that's it. Digiview works on a hi-res mono mode of 16 grey level of 640 x 400. It has image processing built-in and automatically picks up the most suitable but can be manually overidden if you wish. Lo-res colour is either HAM (Hold and Modify) which allows 4096 colours on screen simultaneously or picks 32 colours which it chooses out of 2.2 million colours. (For the interested, that is 2^{22} i.e. seven bits out of each RGB — red, green, blue — 21 bit resolution out of each pixel.) Pretty impressive! It works out the best colours and picture and then smooths out the graininess. You can tell it how much to smooth in brightness contrast etc. with a slider control.

The UK distributor, Argonaut Software, has had such demand that it estimates that in the first month on sale, it supplied 17% of all UK AMIGA users with Digiview. Buyers are mostly in 'presentation' areas like advertising. Some come from outside the UK. An Indian TV company has brought several for titling. Jeremy San, Argonaut's MD, a well-known programmer himself



AMIGA STYLE

DIGIVIE

TISED

presently working on an AMIGA version of 'Starglider' for Rainbird Software, could not let us keep a Digiview for a full test as he had completely sold out his stock of Digiviews — except for the one he was using for titles and other aspects of 'Starglider'. We were, however, impressed by what we saw and on our preliminary viewing found Digiview lived up to all claims made for it.

We hope to return to it when we get our hands on a review copy. It looks a must for everyone involved in AMIGA graphics.

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UK Distributor — Argonaut Software
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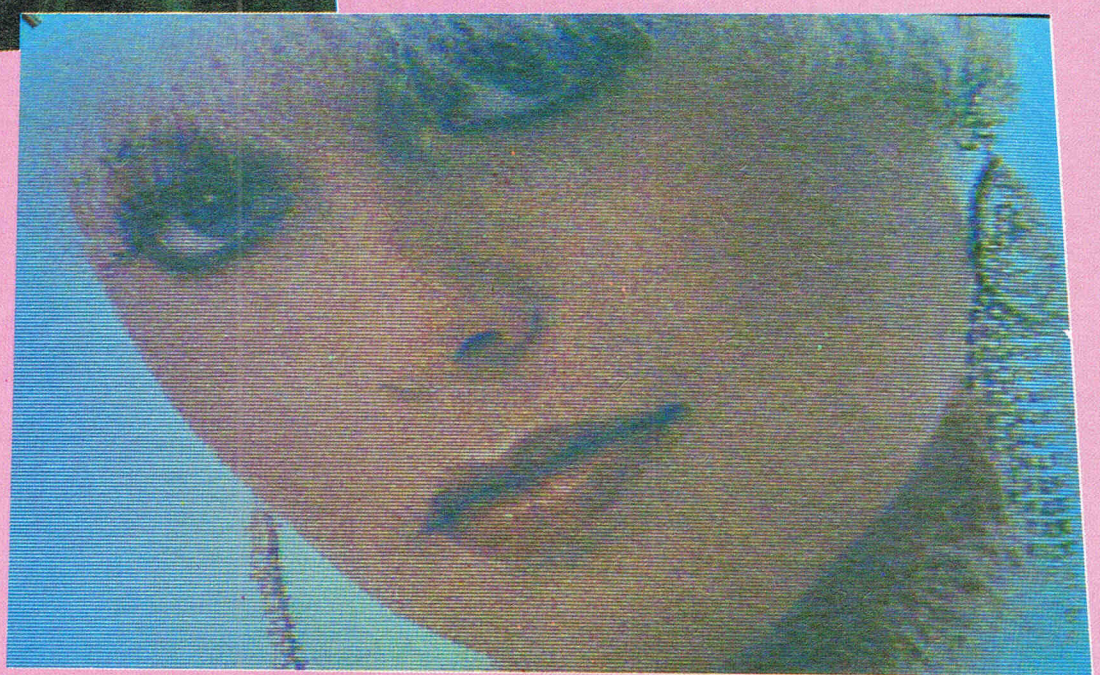

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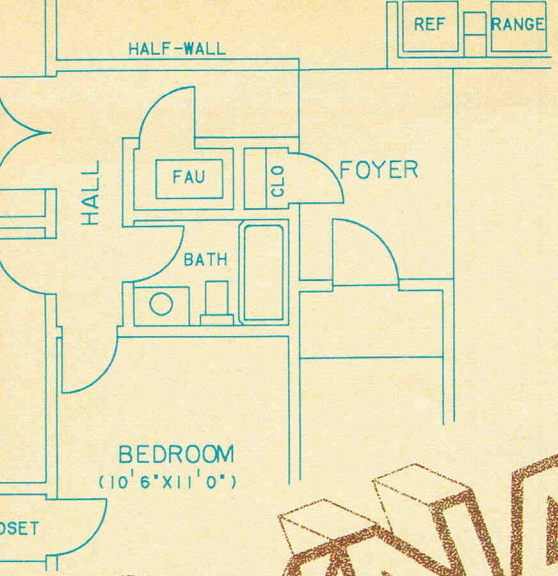

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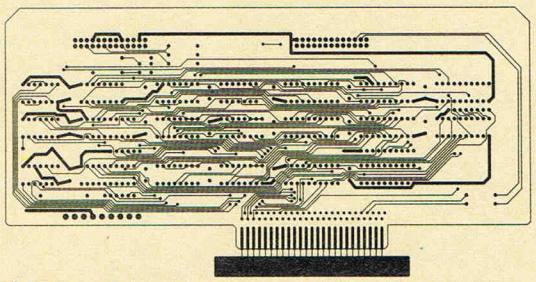

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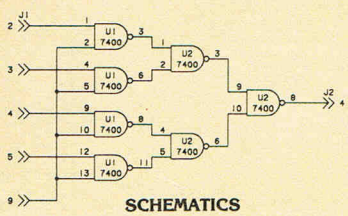
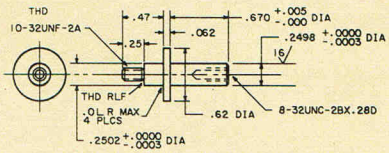


SCHEMATICS

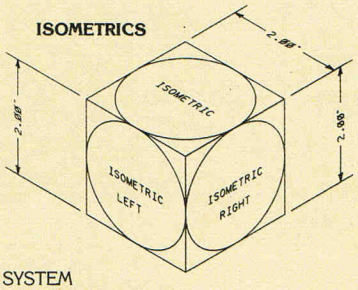


MECHANICAL DRAFTING

SIGNAL NAME	COMP NAME	PIN NUMB	SOURCE	TYPE COMP
S0001	J1	2	I	CON
S0001	U1	1		7400
S0002	J1	3	I	CON
S0002	U1	4		7400
S0003	J1	4	I	CON
S0003	U1	9		7400
S0004	J1	5	I	CON
S0004	U1	12		7400
S0005	J1	9	I	CON
S0005	U1	2		7400
S0005	U1	5		7400
S0005	U1	10		7400
S0005	U1	13		7400
S0006	U1	3	O	7400
S0006	U2	1		7400
S0007	U1	6	O	7400
S0007	U2	2		7400
S0008	U1	8	O	7400
S0008	U2	4		7400
S0009	U1	11	O	7400
S0009	U2	5		7400
S0010	U2	3	O	7400
S0010	U2	9		7400
S0011	U2	6	O	7400
S0011	U2	10		7400
S0012	U2	8	O	7400
S0012	J2	4		CON

NET LIST FROM SCHEMATIC

ISOMETRICS



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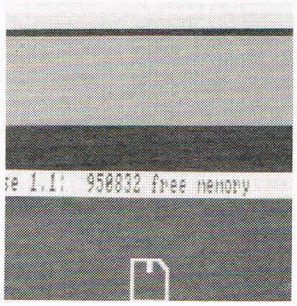

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INTUITION

AMIGA Technical Manuals

When the AMIGA software development machines first arrived in the UK in late 1985 a large number of manuals accompanied them. I think there were six covering various programming aspects of the machine. My initial impression of these manuals was one of horror when it was realised that the native language was C, which until then could hardly have been described as the most popular language in common use in this country. Software developers faced a double-edged problem in that they had to learn about the machine and simultaneously learn C in order to get anything justifiable from the AMIGA. Nearly one year on, we can now look back with the benefit of hindsight, but I can still recall that sinking feeling. I'm sure I was not alone in feeling we had bitten off more than we could chew.

Since the date of publication of these manuals there have been very many changes and consequently, the initial issues have been subject to drastic revisions. For example, the original **ROM KERNAL MANUAL** (the primary operating system) has grown from a single weighty 400 + page tome for the now defunct Version 1.0 systems software into two volumes for the current Version 1.1 systems software and these two volumes contain more pages each than the original single volume!

Commodore-Amiga, the company responsible for the development of the AMIGA has very wisely made the software developers manuals available to the public. The exercise is being split between two USA publishers, Addison-Wesley and Bantam Books, each as exclusive publisher for some of the manuals.

The **INTUITION REFERENCE MANUAL**, from Addison-Wesley covers a lot of ground in the course of its 350 pages. The manual is divided into two parts — the first being conventional text dealing with most aspects of INTUITION, the second forming a reference section to the various system *calls* or routines specific to INTUITION. There are no less than 12 chapters with the first two being concerned with introducing the programmer to the implementation and objectives of INTUITION. Some specimen C programs are included to create a simple window and demonstrate the use of *gadgets*, the graphical devices for manipulating windows. I hope that these programs have been checked to see if they work properly — an awful lot of the programs in the software developer editions of the AMIGA manuals did not! Another point worth bearing in mind with these manuals is the necessity to have access to the Lattice C compiler, your learning curve will be protracted if this is not the case.

By chapter eight the reader should be getting a much better feel for input/output and this chapter covers the various techniques and principles used by the system software of the AMIGA. This chapter deals with message ports and the console device. Chapter nine serves as an introduction to the general graphics facilities of the AMIGA and reveals text, line drawing and images. The display of the AMIGA is entirely bit-mapped and this has important implications for text characters and their manipulation. In chapter ten the input/output facilities of the control ports, mouse and keyboard receive detailed attention whilst chapter eleven is concerned with other features of INTUITION such as the Preferences file. This chapter also includes some useful notes for writing 68000 code in the context of INTUITION. The final chapter is a miscellany and is more a synopsis on the philosophy of INTUITION in terms of programming guidelines and consistency of appearance.

The remaining half of the manual provides full details of both the function calls and the necessary C program structures, as a complete listing of Version 1.1 INTUITION include files are provided. A detailed glossary and index finish off what is by any standards a comprehensive view of INTUITION. Potential purchasers should note that this is a *technical manual* and as such makes very little if any concessions to the beginner. Amongst the numerous assumptions made by the authors of this work are a working knowledge of the C language, some familiarity with the overall concept of the systems software, exposure to operating the AMIGA and not least, the Lattice C compiler. As they say in racing circles *'the going is rough'* but the process of learning the AMIGA and its facilities is well worthwhile. An essential purchase if you intend to program professionally on the AMIGA.

Getting a Guru

Chapter's three and four cover the screens and windows respectively. An AMIGA screen can be customised in many ways and chapter three deals with the design and use of these screens as well as *standard* screens. Windows are the principle means of gaining user input/output and chapter four is concerned with how to define and open windows according to the needs of the application. In chapter's five and six the reader is introduced to the first of the peripheral elements of INTUITION, the gadgets and menus. Gadgets forms the multi-purpose input/output devices which can be designed by the user before attachment to the windows and requesters. Similarly, menus are entirely at the disposal of the user in terms of design and chapter six looks at these and how the user's choice of options and commands are transmitted to the application. Requesters and alerts are dealt with in chapter seven. A requester is an extension of the gadget concept in terms of user input except that a requester **must** be responded to. The alert is simply a visual mechanism of warning the user that there are serious problems within the system such as running out of memory, program corruption, an address-read error, etc. These conditions can traced by means of the by now famous **guru meditation numbers** which attempt to give the programmer an idea of where to look for the fault condition. It could be argued that such information is useless since it is portrayed essentially after the event. Coversely such information is better than nothing and usually the detractors of the alert system are those programmers who do not understand how the system software operates. As owners and users of the AMIGA will testify, *'getting a guru'* is quite a shaker the first time around!

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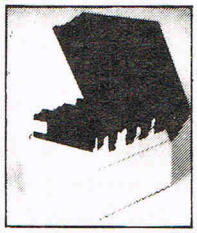

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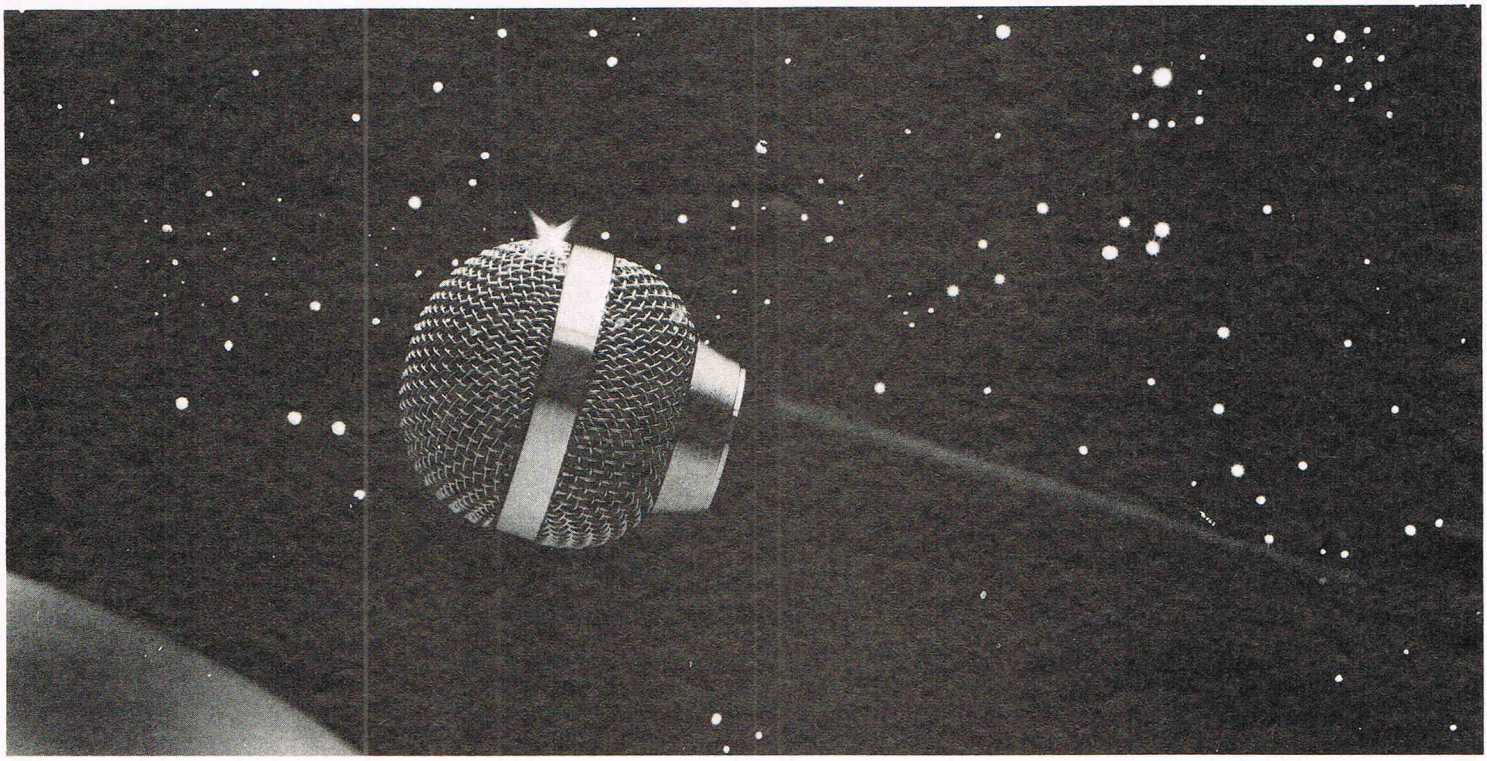

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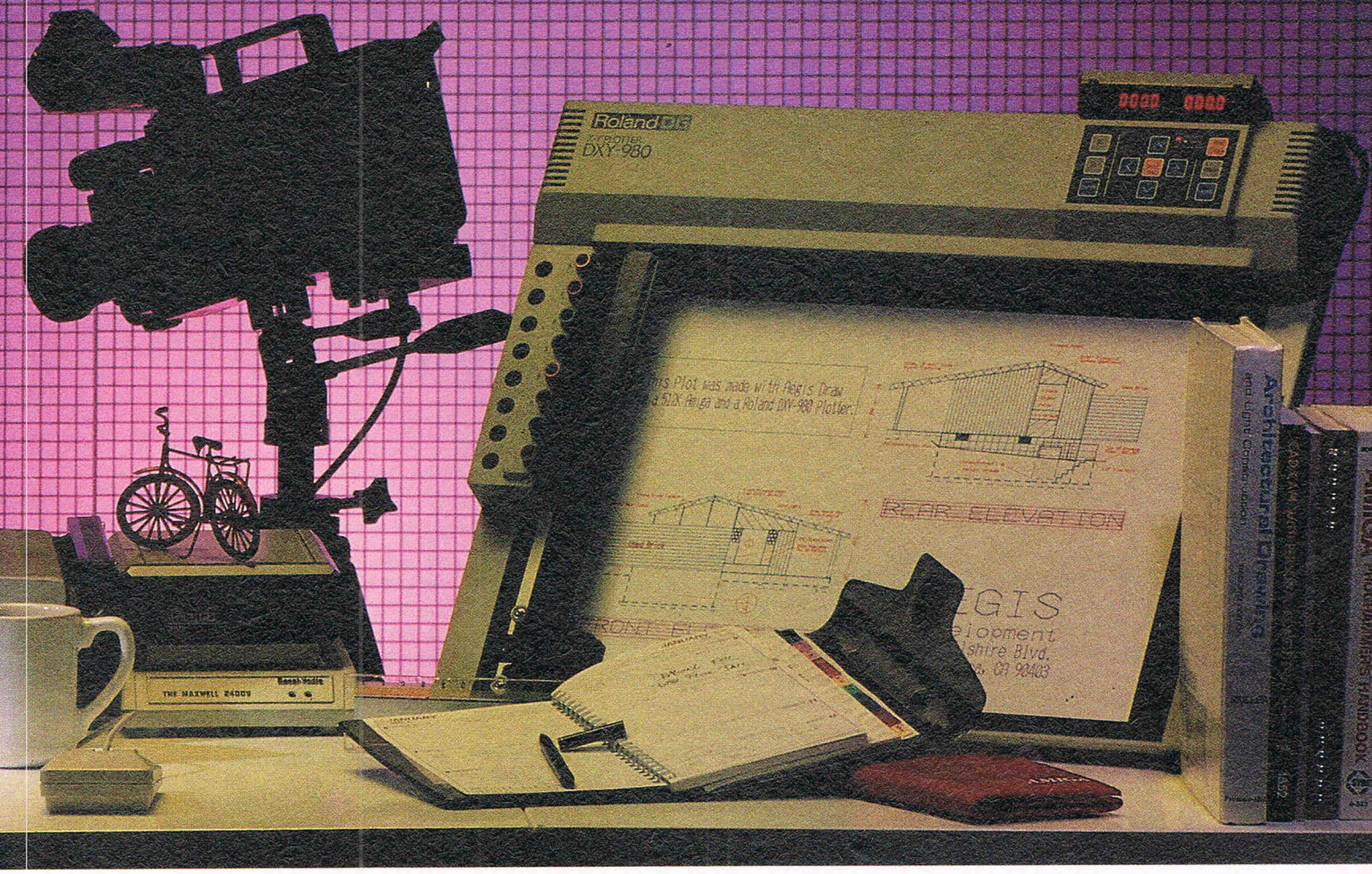

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"*The nethermost caverns are not for the fathoming of eyes that see, for their marvels are strange and terrific. Cursed the ground where dead thoughts live new and oddly bodied, and evil the mind that is held by no head . . .*" Arazok's Tomb is recommended for adult players.

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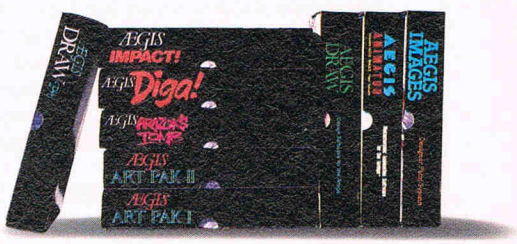

ÆGIS Development

Santa Monica, California

Modem courtesy Racal Vadic, Inc.

CAMBRIDGE LISP

-A Complete Development System

LISP is one of those programming languages that are not seen very often in microcomputers. Yet it is one of the oldest languages around. Presumably because the main outlet for LISP was and remains *artificial intelligence, (AI)*, the language was felt to be inappropriate for 8-bit machines with limitations on memory space, clock speeds, etc. But what is this mythical beast *artificial intelligence* of which we read so much about? It is an area of scientific research to provide computers with the ability to think — that is the machine has the ability to reason or deduce after being given certain information about the problem. A conventional machine can only operate within the confines of the variables within a program, an intelligent machine would be able to define its own operating parameters for a given problem.

The name *LISP* is short for *LISt Processing language*, which is a fairly accurate description of its appearance. A LISP program is very distinctive since it looks like no other language. For example, the following is a program fragment:-

```
(TIMES (PLUS 4 5 6) (DIFFERENCE 4 2)
(QUOTIENT 9 3)
```

The equivalent in arithmetic terms is ....
(4+5+6) * (4–2) * (9–3)

If the above example was easy, then try this:-

```
(DE UNIFY1 (e1 e2)
   (COND [ (EQ e1 e2)' (T) ]
    [ (VAR e1)
      (COND [ (NOT (OCCURS e1 e2))
       (LIST T (LIST e1 e2)) ]
    [ (VAR e2) (LIST T (LIST e2 e1)) ] ]))
```

OK, you get the point but LISP is certainly no more difficult than learning another relatively new language to the Commodore world, namely C. But why bother with learning LISP if you have no interest in AI? Well LISP has the overwhelming advantage of screening the user from the machine itself and provides the programmer with a consistent syntax and format. It is a symbolic language which offers considerable flexibility in program design and control of data flows. You can operate a LISP application within the LISP environment itself, a concept which lends itself readily to simulation. Scientific, mathematics and engineering are the main applications for LISP outside of AI. For example in engineering, LISP is used in control software for robots and for symbolic algebra in astro-mathematical applications. As you can see LISP is not some long-forgotten programming language from the backwaters, rather it is a powerful but specialised language which seems to suffer from a poor public relations image.

As is usual with so many computer languages LISP suffers from the dialect problem, although it must be said that portability is insurmountable and certainly much less than that of the much vaunted portability of C. The Metacomco version of LISP is the *Cambridge* derivative. Cambridge LISP is a development of a LISP implementation on an IBM 370 mainframe at Cambridge University and Metacomco have translated this into a 68000 version. Of the four main groups of LISP dialects, namely *INTERLISP, MACLISP, COMMON LISP* and *STANDARD LISP*, Cambridge LISP follows STANDARD LISP the closest. I must admit from my own observations of LISP the differences tend to revolve around syntax such as *subtract* or *difference*. Studying LISP from a book which is ostensibly for another dialect does not therefore present a serious problem provided the user applies common sense.

The single disk format follows that of Metacomco's PASCAL for the AMIGA and can be transferred easily to hard disk or backed-up without problems. The manual supplied with Cambridge LISP is both very thorough and detailed, running to just under 200 pages. Again, similar to their PASCAL manual, there is little attempt at providing a tutorial although there are some example programs present, the manual concentrates on the huge range of LISP functions, since LISP is essentially about functions. An indication of the depth to which the manual reaches is the index which covers 9 pages! The standard reference work on LISP which I use is **LISP** (2nd Edition) by **P.R. Winston** & **B.K.P. Hall**, published by Addison-Wesley (**ISBN 0-201-08372-8**). For over 400 pages the cost in the UK is a very reasonable £14.95 — we plan to publish soon a review on several LISP books including this one.

COMPLETE SYSTEM

The implementation by Metacomco includes not only a LISP interpreter but compiler, thus this package could well serve as a complete software development system using LISP. Several parts of this version of Cambridge LISP make it an outstanding bargain for the price. The compiled and interpreted functions

may be used on an interchange basis - this provides the means of a very rapid development cycle since a function may be tested before the commitment to a full-scale compile. The trace mode is operational on both compile or interpreted code, again representing a time saving. Another very useful facility is that of being able to dump the *core image* to disk (note the mainframe terminology) after running the interpreter, thus allowing customised cores to be preserved for future use. To some extent LISP is similar to FORTH in this respect although unlike FORTH, the user does not have to have the same degree of intimacy with the system hardware.

LISP has been often criticised for being poor on mathematical applications and yet this version supports floating point integers of any size! As a test of the strength of the maths capabilities I tried the following using the Cambridge LISP interpreter — calculate 2 raised to the power 5555. The time taken was circa 43 seconds and produced an integer number covering several screens. If you felt that this was not fast enough I substituted the 68000 cpu for an 8Mhz 68010 cpu and the time was reduced to 27 seconds!

One of the key features of any LISP implementation is the ability to *garbage collect*. This phenomena will be familiar to those readers who used the Commodore 64 where discarded strings could literally strangle the machine to a halt until the operating system took it upon itself to go through the memory and delete the unwanted strings. Cambridge LISP caters for full *garbage collection* and avoids tieing down memory unnecessarily. The diagonstic messages from the intepreter are clear and with the aid of the manual mean debugging is mercifully short before compilation. Recursion and function composition means the programmer can design the application on a *top-down* basis — an important point for both a multi-tasking environment and those who are new to the AMIGA as a machine.

There is one drawback to Cambridge LISP, it requires plenty of RAM in which to operate — a minimum of 300k. This is a characteristic on any LISP implementation, in that LISP will attempt to soak up the maximum amount available of memory resource. However, since most AMIGA sold now in W Europe and elsewhere have 512k of RAM as standard then this presents no real problem. Indeed with my own expanded machine of 2.5MB, Cambridge LISP took in the region of 1.75MB which still left me 750k free for other applications.

So why purchase Cambridge LISP? Well the first point is that LISP is not only a language of the future but is likely to be a strong candidate as THE language of the future in one shape or form. Secondly, LISP is undoubtedly a powerful language in skilled hands although it seems to suffer from an identity problem which I feel is both unrealistic and unfair. Finally, the cost of acquiring what is a complete LISP development system at the price currently being offered by Metacomco is a bargain in anyone's language.

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VIRTUAL FACSIMILE —Fax without a Fax

These days, $2,500 will get you a sleek new Group 3 facsimile machine from any of half-a-dozen vendors. Priced at less than one-quarter of what comparable equipment was selling for five years ago, some of the new machines will transmit a page-worth of electronic mail across the world in 15 seconds or less. More than a half-million desks in the U.S. now have fax machines on them, according to a new 202-page report from International Resource Development Inc., a Norwalk, CT-based market research and consulting firm. But more than eight million desks have personal computers on them, and for the secretaries, professionals, managers and technicians with personal computers, fax capability doesn't need to cost $2,500.

Accounting to the IRD report, more than 30 suppliers are now offering scanners or cameras for personal computers, able to scan and digitize an image of any document, and transmit it to a remote destination. These scanners range in price from $200 to $15,000, depending upon resolution, features and capability, and facsimile vendors "sat up and took notice" when IBM entered the PC scanner market in June with an announcement of two Japanese-built PC scanners, according to Jean Buffham of the IRD research staff.

FAX VENDORS "WIPING THEIR EYES"

The IRD product-planning consulting staff has been visited by a "steady procession of Japanese fax product planners, wiping their tears from their eyes on the well-pressed sleeves of their dark blue suit jackets," reports Buffham. The potential competition from low-cost PC scanners first began to worry the fax vendors three years ago, but now it is having the first real market impact and "they don't know what to do about it," comments Buffham. The fax market worldwide has been growing rapidly during the past three years, and most U.S. and European manufacturers "have long been driven out of the business by aggressive Japanese pricing and absolutely super Japanese products," according to the IRD report. "But it's the U.S. vendors who are currently making the running in the PC scanner field," explains Buffham, noting that "even when the scanners are made in Japan, as IBM's and Pitney Bowes' are, most of the remainder of the PC system is, in general, U.S.-built."

WANTED — LOTS MORE SOFTWARE!

Most of the PC scanners and image processing systems currently on the market can handle virtual facsimile transmission, but the user may have to go through a number of cumbersome steps in order to explain to his PC exactly where the image is to be sent, then explain to the PC at the receiving end exactly how to print out the image. "There's a real shortage of software for virtual fax," says Buffham. "The whole thing works easiest with the scanners which were designed with virtual fax in mind, rather than CAD/CAM, OCR, or other image-processing applications," according to the IRD staff, who single out Chorus Data Systems (Merrimack, NH), Dest Corporation (Milpitas, CA), Pitney Bowes (Stamford, CT) and AT&T as having systems particularly easily used for virtual fax.

GammaLink (Palo Alto, CA) has a unique PC add-on board which allows personal computers to talk to facsimile machines, and vice-versa, thus linking the world of virtual facsimile with the world of conventional facsimile machines, and vice-versa, thus linking the world of virtual facsimile with the world of conventional facsimile.

THE BLUE CLOUD — DOES IT HAVE A SILVER LINING?

Describing the IBM entry into the world of virtual facsimile as a blue cloud overhanging the billion-dollar facsimile business, the IRD report points out that there may be a silver lining to this cloud, in the form of increased facsimile usage as a result of the much-larger population of machines (both conventional fax machines and personal computers) which can send and receive image traffic. Conceiably, this could boost interest in fax, and trigger more purchases of fax machines by folks who don't already have personal computers; however, "the PC users are going to go for the scanners, and not for fax machines," assets Buffham.

While vendors such as Wang and AT&T have provided their PC image processing systems with 200 dots-per-inch modes — the same as Group 3 facsimile — other vendors have adopted a variety of different resolutions. Canon's scanner works at 300 dots-per-inch, the same as the company's laser printers. The IBM scanners are mostly geared for 240 dots-per-inch, but certain coarser resolutions can be handled, too. "The IBM scanners aren't compatible with Group 3 facsimile; however they will probably fit into a Group 4 environment because Group 4 printers are supposed to be able to deal with 240 dots-per-inch, even though Group 4 transmission is geared to 400 dots-per-inch," explains Buffham.

While virtual facsimile will be an important application of personal computer image processing equipment, the IRD report explains that the PC image processing user "will typically regard virtual fax as just one of his graphics related applications". The report reviews all of the current and expected future applications of the technology, predicting that today's $340 million market for PC Image Processing hardware and software will leap past the $3 billion level by 1990.

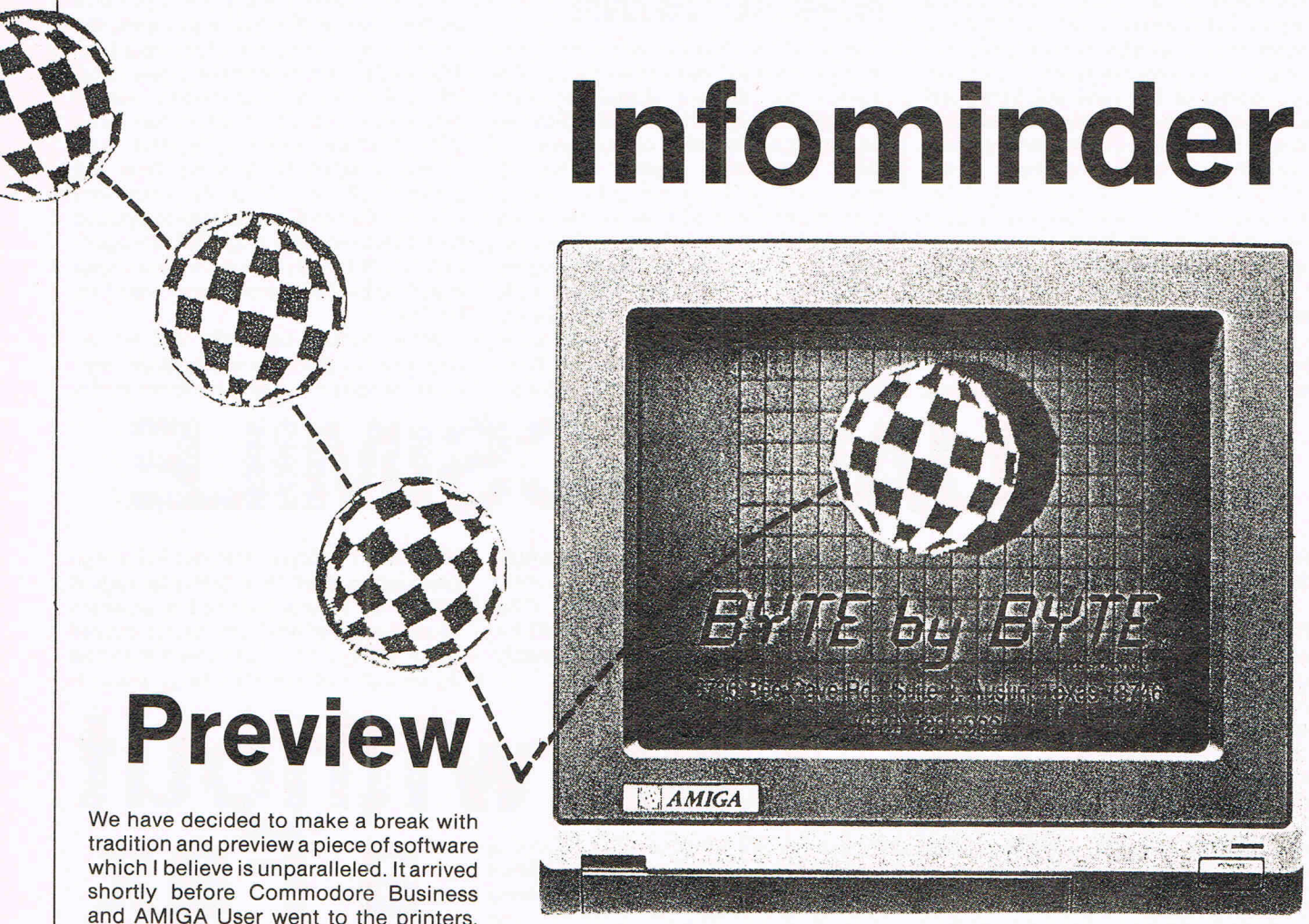
Further details on the $1,850.00 report VIRTUAL FACSIMILE & PC IMAGE CAPTURE/TRANSMISSIO/PROCESSING' including free table of contents and description, are available from IRD at 6 Prowitt Street, Norwalk, CT 06855 U.S.A.; Telephone (203) 866-7800; Telex 64 3452.

Conventional vs. Virtual Facsimile Users
1986-96, U.S.

	1986	1988	1991	1996
	(thousands of units)			
Conventional facsimile				
New placements	180	130	90	70
Year-End Installed Base	540	750	800	700
Number of units in active use (year end)	330	450	600	500
Virtual facsimile				
New placements (scanners)	20	300	450	400
Year-End Installed Base	40	450	1,300	1,700
Number of units in active use (year end)	30	200	600	900
Total				
New placements	200	430	540	470
Year-End Installed Base	580	1,200	2,100	2,400
Number of units in active use (year end)	360	650	1,200	1,400

(SOURCE: INTERNATIONAL RESOURCE DEVELOPMENT INC.) 707

Infominder



Preview

We have decided to make a break with tradition and preview a piece of software which I believe is unparalleled. It arrived shortly before Commodore Business and AMIGA User went to the printers. However, only does it fully exploit many of the hardware facilities of the AMIGA, but the approach it takes and what it can achieve for the user easily qualifies this product for the accolade of so far the Most Innovative AMIGA Software of 1986. So what is about INFOMINDER that causes us to wax lyrical about it. INFOMINDER is, we believe *unique*. INFOMINDER is an **information manager** a system which allows extremely fast retrieval of text and graphical information. But this is not done through the conventional database management system of defining rigid fields, records and file structures — rather by using the inbuilt hierarchical directory structures of AmigaDOS.

INFOMINDER will take a text document created by the user and use it as the basis of a topic. Various components of your text can be made into *subtopics* and related to other documents. For example, let's take the subject of english railway history. The key document would be a general introduction:-

Introduction

Railways in the UK were first started through the driving force of one man, *George Stephenson*. He originated from the *Tyneside* area of England and worked in the *coal mining* industry. His early experiments were financed by a group of colliery owners named the *Grand Allies,* the most prominent member being the *Earl of Londonderry*. Stephenson built on the knowledge of using steam as a *prime mover* from *James Watts*.

Throughout this document several potential topics have emerged which I have underlined. The first one relates to Stephenson, the second to Tyneside and so on. By creating another document specifically dealing with these subtopics a complete information structure can be erected, supplemented if necessary with graphic screens from a paint package such as Aegis DRAW or Deluxe PAINT. The information within each document can be *compiled* by INFOMINDER and together with user-defined *help screens* provides an environment which allows very quick cross-referencing.

There are three elements to INFOMINDER — a display facility, information compiler and finally an online help facility. Most users will probably restrict themselves to the display facility although application developers will make full use of the system. Some potential applications for INFOMINDER could be in a teaching environment — learning how to operate a complex piece of machinery; as an online reference library of book abstracts, phycological testing by analysis of user selections and responses to images; criminal investigations by cross-references to criminal's modes of operation, and the list can go on. INFOMINDER will even allow the Narrator device to speak the text within the document. Couple this with the ability of the Narrator to use phonemes and thus speech idioms and foreign language narration and you begin to appreciate some of this products potential.

Time has precluded any in-depth investigation of INFOMINDER — what we hae seen so far has left us astonished. In the next issue there will be a full review, meanwhile if you have an opportunity to purchase this software then our advice is to do so and be quick about it — the word is going around!

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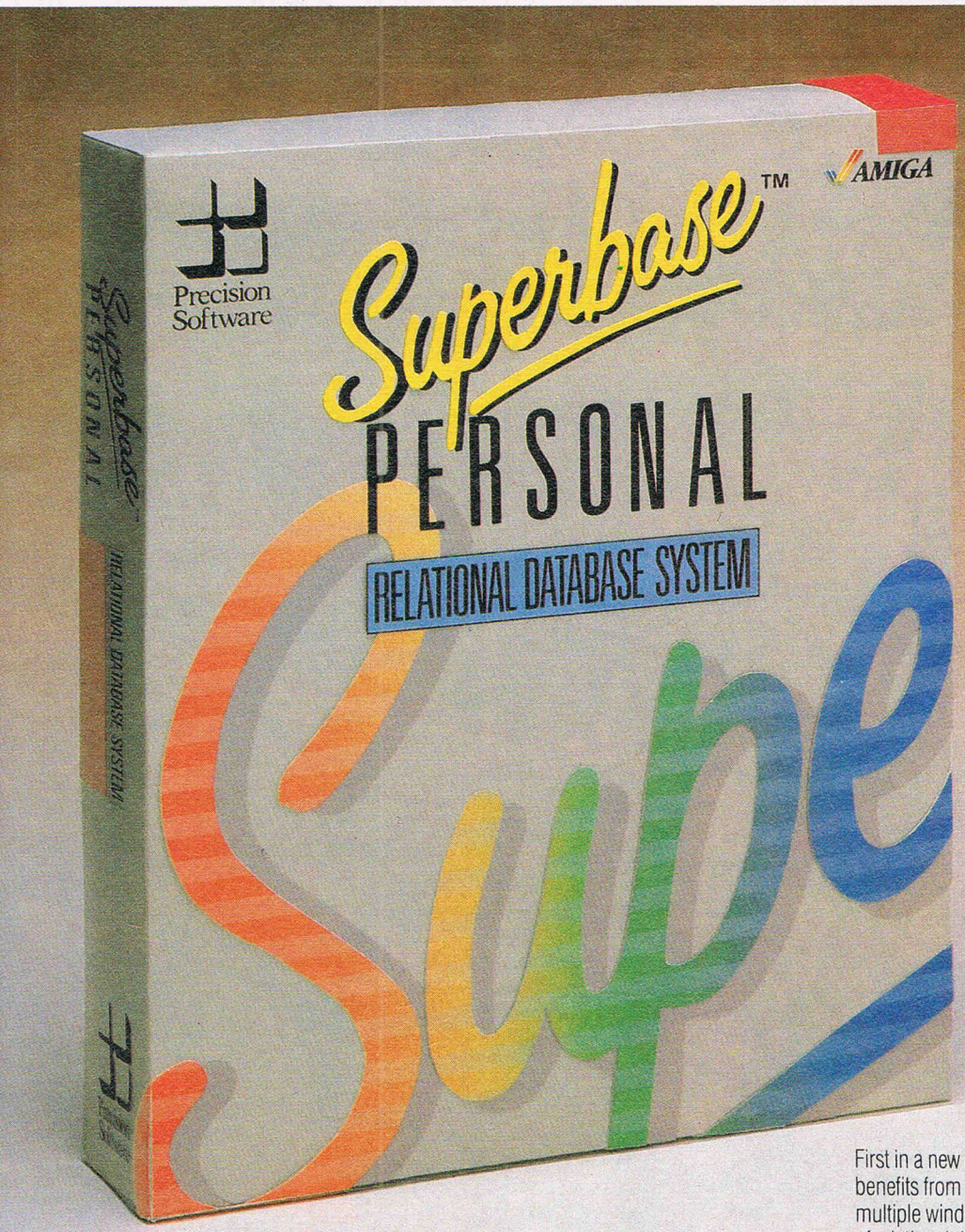

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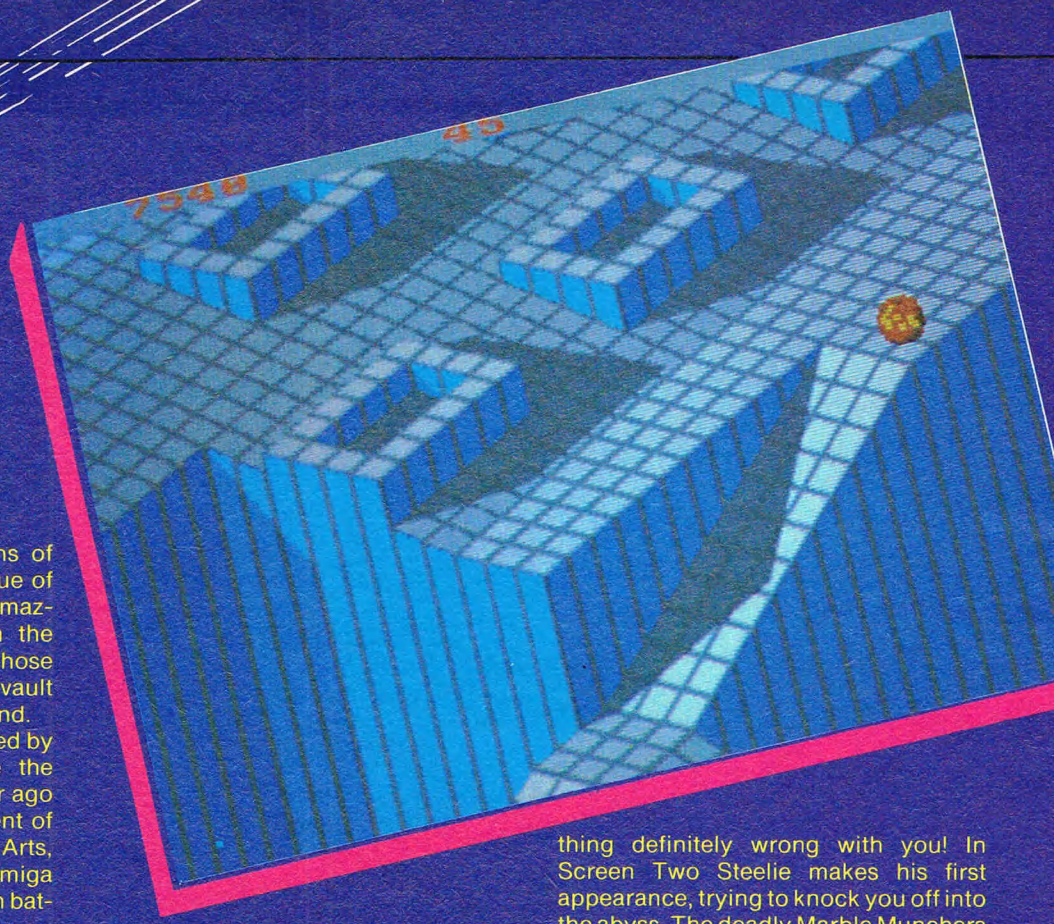

Yes! Its here at last, after months of speculation. In the September issue of CCS we carried a preview of this amazing game, brought to you from the secret headquarters of a company whose name still remains in a top security vault in the depths of the Bank of England.

Marble Madness has been awaited by the Amiga fraternity ever since the machine was released, over a year ago in the US. Since the announcement of the game was made by Electronic Arts, Amiga owners, and prospective Amiga owners alike have been waiting with bated breath for its release.

Marble Madness first appeared as an arcade game from Atari Games Corporation in the spring of '85. It immediately created a cult following, with huge amounts of cash being slotted into the unsatiable maws of these machines. The game featured an amazing stereo sound track, and truly stunning 3D graphics. It was also a totally original concept, which probably also helped considerably in the game's popularity. Up until this point, Electronic Arts had

vowed never to copy an idea from another game, or to do arcade conversions. The very fact that they broke this vow to program Marble Madness on the Amiga displays their very high opinion of this game. A version is also being written for the Commodore 64 (due out in October).

Nobody can really pinpoint what makes this game so compulsive and addictive, although many suggestions have been made. Some say it is because of the marvellous sound track that seems to hold you to the game, some the movements of the ball. A suggestion was even made that it was because of the 'cute' way the ball falls apart when it crashes, although I don't think this is very likely.

Marble Madness on the Amiga is the first arcade conversion on any computer to live up to the original. All the features are there, including the stereo sound track, the 3D graphics, and the excellent sound effects. It is in fact a lot easier than the arcade version, although you may change your mind on this point if you play at Level 7! Two players can play simultaneously, one controlling the red ball, and the other the blue ball. Unfortunately it must be said that with two players, game-play does tend to slow down a bit, and both players experience a slight lessening of control. However, you soon get used to this, and normal play resumes! The two-player games are very different to one-player games. For a start, speed is reduced and of course besides Steelie, the black ball who constantly harasses you, you have the other player to contend with! Some of the paths are very narrow, and the only recourse is to knock the player off the playfield . . .

The 1,000 levels previously rumoured are, in fact, only 6. Level 5 is the 'Silly Level' where 'everything you know is wrong!' ramps going down have 'upward pull' and vice versa, so going down is like going up, and going up like going down! It all gets very confusing . . . The final level combines all the obstacles of the previous 5 levels into an incredibly difficult finale. Finish this, and you're good!

The various screens go up in difficulty with every screen-change. Screen One is just a practice, with no obstacles. If you can't finish this, then there's something definitely wrong with you! In Screen Two Steelie makes his first appearance, trying to knock you off into the abyss. The deadly Marble Munchers show themselves here too, first stunning you so you can't move when your marble's hit one, and then leaping up, mouths, if they can be called that, wide open ready to consume you with a satisfied burping noise.

A few bugs have crept in, although that is only to be expected in a game of this size and complexity. They do not affect game-play in any way at all, but are merely cosmetic. The ball when it falls behind an object sometimes appears in front of it. This only happens when you die, so there's no cause for concern there! Apart from that small gripe, I have no complaints about this game whatsoever. It is a gem of a program, and

accurately captures the essence of the arcade game. The sound has been done very well, especially if you are lucky enough to have stereo speakers to get the full effect. Each screen has its own, original sound track which matches the type of screen you are playing. The Silly Level has silly music accompanying it, and some very nice squelchy sound effects. Every screen seems to have its own individual personality which is presented by the obstacles you face, the colour, and the music and sound effects. It is impossible not to enthuse about this game, and even the most hardened sceptics of the Amiga almost gasped in awe when they saw this game. This is one of the few games about which I can honestly say to people 'go out and buy it, whatever the price', and the price is probably going to be a pretty sum! In tne UK, Marble Madness is due to be marketed by Ariolasoft, along with a lot of Electronic Art's other products. It will come in a squashed video-cassette type box, with an almost complete lack of documentation! After all, there isn't a lot of explaining you CAN do with this game — simply get out there, avoid everything, touch nothing except the surface, and get to the goal as fast as possible! Once you've done that, well there's nothing for it but to try to do it again . . . and again . . . and again . . . and .

Shortly before we went to press, we managed to interview the author of Amiga Marble Madness, Larry Reed.

Larry has been involved in programming ever since he was in high school. He first worked on CAD/CAM for Xerox, and later at Versatec. He has worked on several Electronic Arts games in the past, and most recently of course, Marble Madness.

He signed a contract about a year ago, to produce this legendary arcade game for Commodore's 6800 machine. The game has been in development ever since. Although some may wonder why it took so long, take a minute to think how difficult a task it is to program a game like MM!

Madness Marble — the development of

The original arcade machine game was written 95% in 'C', and ran on a 68000 processor (as the Amiga) with a great deal of specialist graphics hardware. What Larry had to do to port the game across to the Amiga was to emulate a lot of this hardware in software. Consequently, the processor is spending a lot of time emulating this hardware, which slows down other operations. So when the game is being played at high speeds, the scrolling becomes temporarily jerky because the processor can't keep up.

The Amiga version is also written in 'C'; in fact, 90% of it is written in 'C'! This is quite an achievement considering how slow, in comparison with straight code, 'C' is. Some of the graphics routines are written in code, but apart from these everything else is in 'C'.

In the US, Marble Madness has taken the Amiga fraternity by storm. Stores are selling them as fast as they can get their hands on them, and just like us, all the US magazines are enthusing over it. We will permit ourselves just this one little ego-boost; CCI was the first magazine in the world to preview this amazing game, even before all the American magazines. A little achievement of our own. Not much, however, compared to the admiration we are sure you will feel when you play Marble Madness yourself.

One-on-One by Electronic Arts

One-on-One is a basketball simulation, featuring two of America's most talented basketball players, Julius Irving and Larry Bird represented on-screen. You can control either one of these, with the Amiga controlling the other, or alternatively, two players can compete. If you want to just sit back and watch, the computer can play itself. This can provide a useful insight into what tactics to employ as each, if computer controlled, have their own style of play, guides to which are provded on the packaging in the form of game design comments.

The Amiga has the shooting-percentages for each player stored. It also knows their favourite shots, and their shooting positions. So playing as J. Irving will be different from playing as L. Bird. Dr. J., as he's called, is quicker on his feet than Larry, and tends to employ fancy footwork. Because of his lightness, he can jump higher and stay up in the air longer. Larry, who is heavier, is a better rebounder, and is intimidating when on the defensive because of his size and power. Knowing these facts, and using them to full advantage can really help you win in this game. Unfortunately, it does take quite a long time to use them instinctively. If you have to stop and think 'now what do I do next?' then you're sunk, and another two points get added to your opponents score!

One-on-One takes into account fouls, and lists reasons for fouling for the non-basketball player. You might also get a 'hot streak' when you know you just can't miss. The computer decides when you get these, so you'll have to sense it!

Of course, even pixels get tired of running and jumping all over the screen, so the fatigue bar will tell you what state you are in physically. To regain strength, dribble slowly or call a time out. Fatigue will really affect your performance in the game. Tired players don't shoot as well, or perhaps more importantly, defend as well.

The game also contains a number of humorous additions. If you shoot the ball hard enough, then the backboard shatters, and a little man comes along and sweeps up the debris. After a particularly good shoot, the computer will show an action replay. The manual gives a good, if short introduction to offensive and defensive moves, and some useful shooting tips.

Some really brilliant sound effects are included. It sounds as if Electronic Arts went along to a real basketball match and actually digitised all the sounds that were going on. If you listen carefully you can even hear a guy in the background selling hotdogs! The graphics aren't too stunning, and I'm sure they could have been vastly improved, but the game has 'feel' to it, which is what makes it so enjoyable to play.

UK Distributor: **Ariolasoft: £29.95.**

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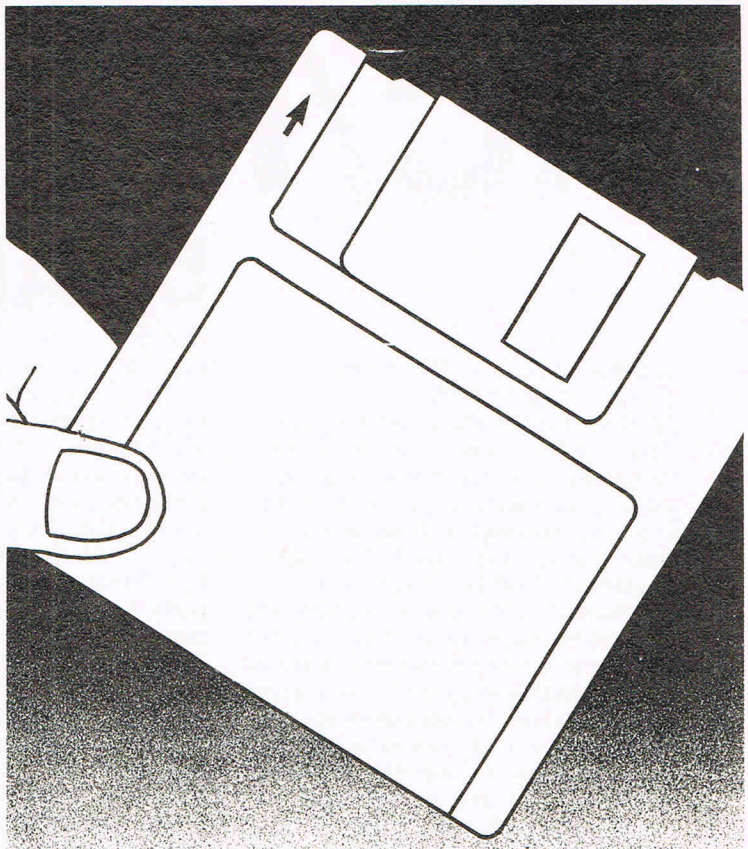

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AC/FORTRAN

by Absoft

MICRO: AMIGA — Minimum 256K & One disk drive $245.00

What was the first High-level language? What was the first language to be standardised by a national standards body (ANSI)? From what language was BASIC originally derived? The answer to all these questions is FORTRAN. So, as you can see, FORTRAN had a very good start to life. It was developed by IBM and released to the public in 1957. Up until then most programming was done in either assembly language or was hand coded. FORTRAN was primarily intended for engineering and scientific use and was designed to handle problems involving large sets of formulae and complex numerical computation. It is from this that its name was contrived FORmula TRANslation. FORTRAN is not an interpreted language like BASIC but is of the compiler variety. What this means is that in order to run a programme it is first necessary to compile it. This involves a resident programme examining each command and statement and translating them into machine language. Some of the benefits of a compiled programme are a much faster run time, a more efficient programme and lower memory requirements at run time. As a Micro user the only major drawback comes when your programme fails to fuction properly and you need to reload the source code, edit it and recompile it each time.

Due to FORTRAN's widespread acceptance and use it became necessary to agree on standardization. Having standard versions of computer languages enables a program written for one type of computer to be run on a different type of computer, assuming that the same language is available for both. The first FORTRAN standards were set in 1966 and from these came FORTRAN IV, often referred to as FORTRAN 66. Over the years numerous extensions to the basic language became available and standardization was again required. In 1977 the new standard FORTRAN 77 was formalised. At the date of writing this was still the current version.

Absoft's AC/FORTRAN is a full implementation of FORTRAN 77 (it can also handle FORTRAN 66 programmes) but with the addition of numerous extensions to permit access to some of the AMIGA's amazing capabilities. It comes on a double sided 3.5 inch Micro Floppydisk and is accompanied by a 170 page ring bound binder containing three manuals. The largest of these is simply entitled "AC/FORTRAN" and is intended as a reference guide for the use of the Absoft implementation of FORTRAN 77. This is subdivided into 4 parts. An introduction, the compiler, the debugging aid and programming in FORTRAN. It is not, however, intended as a tutorial. A list of several books suitable for learning FORTRAN is included in the bibliography at the rear of the manual. The second Manual consists of additional information on the compiler, the linker (a programme which links in external procedures to a programme), the debugger and documentation on a few external FORTRAN subroutines. The first manual is the "FORTRAN 77 Amiga interface Manual". This is probably going to be the most important one of all to the dedicated Amiga freak as it covers a FORTRAN procedure called "amiga.sub" through which access is given to almost all of the AMIGA's ROM routines including the graphics, Dos, exec and intuition libraries. The source code of this procedure has been provided should anyone care to understand its operation or even enhance it.

When writing a programme in AC/FORTRAN the first thing to do is to create a source file. This is done using the system editor "Ed". One problem you may encounter here is that "Ed" is not documented in the literature supplied by either Commodore or Absoft. The source file has to be written in a predefined format. This is due primarily to its ancestry. Programmes were originally entered into computers by means of punched cards. These cards were set out as 80 columns by 12 rows. Each column represented one character and each character would be selected by punching holes in the relevant rows. i.e. the letter "A" would be represented by punching holes in rows 12-0-1-9. I happen to know that several of the big high street banks still use punch cards to a limited extent to this very day. The format required by FORTRAN is as follows: Statements must begin in column 7, while columns 1 to 5 are reserved for statement numbers. Column 6 is used to indicate that it is a continuation of the previous line. Once we have finished writing our source file (deck) we need to compile it. This is achieved by typing 'F77' followed by any options required and then the name of the source. The options are a means by which extra commands can be passed to the compiler. i.e. "-A" will generate an assembler source code, while "-K" will disable case significance. There are nineteen options in total. More than one option may be used at once. i.e. "-ABC". Depending on what options were selected the compiler will, on completion, display the amount of memory used. If the compiler was successful it will show the elapsed time and the lines per minute compiled. If all went well we would now have a file which can be loaded and executed. What do we do if the programme does not work? We have to track down the error/s and fix them. This we can do with the aid of the debugging tool DEBUG. This is a screen orientated symbolic debugging tool for FORTRAN programmes and external procedures. It provides for executing single statements, setting breakpoints, executing blocks of statements and examining and modifying the contents of programme variables. Very useful.

Conclusion

AC/FORTRAN is a full implementation of ANSI FORTRAN 77 but with the ability to make full use of some of the AMIGA's outstanding attributes. It gives near machine code speed whilst retaining a high level language's ease of use. I do feel, however, that the manuals could have been better. They leapt straight into the technical stuff without covering the basics. I found the last manual to be of the most use with the first being the least. Incorporating a step by step guide on the birth to death of a programme would be a boon. Bearing in mind Commodore's shortcomings when it comes to documentation, a paragraph or two on the system editor and CLI and a few more example programmes wouldn't have gone amiss. Overall a nice package which could appeal to both the experienced FORTRAN user and to the Amiga user who would like to enjoy the advantages of a compiler language. Once mastered it becomes a very powerful tool. I like it!

Ian Bennett

K-SEKA ASSEMBLER

This assembler is not the first to appear for the AMIGA although it is the first to be made available for public sale. The only other assembler I am aware of at this time is the Metacomco 68000 Assembler which was originally part of the software development kit provided to registered AMIGA software developers in the UK. The Metacomco assembler is a competent product and although it is now on public sale in the USA, it is not a series of routines or libraries for specific mand sequences necessary to invoke any work from it see to that. In addition there no monitor is present — the 68000 monitor is provided by another software developers product called WACK (short for Westchester Amiga Crash Killer?). Thus the prospective purchaser is faced with buying two separate pieces of software.

Working in assembly language on the AMIGA is not too difficult but is only recommended where absolute speed is essential for the application. With a clock speed in excess of seven times that of previous Commodore machines, even high-level languages such as BASIC are not particularly slow. The operating system of the AMIGA was written in C and this is the recommended approach by Commodore for low-level programming since there are direct hooks into the system software using C. These books are omnipresent and using assembly language means that labels rather than direct addresses are used. For example, the multi-tasking control of the system is carried out by an entity known as EXEC. This is responsible for many things such as memory allocation, placement of your program code, task scheduling and input/output. EXEC is the core of the AMIGA.

The operating system is made up of series of routines or libraries for specific tasks. For example, the disk operating system is controlled by the *DOS* library, EXEC is controlled by the *EXEC* library. In order to get the AMIGA to do anything the you must first '*open*' the *EXEC* library, which in turn provides the *'open'* mechanism or routine to open the other libraries. An abbreviated AMIGA 68000 assembly language fragment would look like this:-

```
move.1 a6,— (sp)          ;save current
                           contents of
                           register a6
move.1 ExecBase, a6       ;move the
                           address of the
                           EXEC library
                           into register
                           a6
lea intuition.library, a1 ;load the
                           effective
                           address of the
                           required
                           library name
                           in this case
                           Intuition
                           library into
                           register a1
jsr OpenLib (a6)          ;call the
                           OpenLib
                           routine from
                           EXEC
                           which now
                           checks to see
                           that the
                           ;library name
                           is in register
                           a1
move.1 d0,IntuitionBase ;place the
                           address of the
                           library base
                           in register d0
move.1 (sp) +, a6         ;restore
                           register a6 to
                           original value
```

Note how labels are used extensively therefore the correct spelling is essential. Your source code file would look virtually identical to this apart from the setting up of the library version number and the inclusion of any macros. Addresses are always dealt with indirectly, unless of course you wish to abandon the benefits of multi-tasking.

Since the object code relies on relative addresses, the code must be *'linked'* with the existing system software libraries. The process of *'linking'* ensures that at the time of loading the application program code the addesses are correct. For example, when the object code was initially created it would be located at a certain address, let's assume $00A000. However, on the next occasion it is loaded into memory, this address may be occupied by object code from another application — remember the AMIGA is a multi-tasking machine. To overcome this, particularly when branches within the code may absolute to an address, *'linking'* solves this problem. Thus an important feature of assembly language work on the AMIGA involves carrying out the *'linking'* process, although the above example is only part of the function of *'linking'*.

Unprotected

Having briefly looked at the technique of programming, what does the purchaser get for his or her money? The product is supplied on an unprotected disk along with a 35 page manual. The manual make no pretence to learning the semantics of 68000 code generation and is entirely concerned with the operation of the various components. There is a text editor which seemed initially superfluous since AmigaDOS provides the excellent ED or EDIT for this purpose. However, this editor provides a cut-and-paste facility and improved control over the screen output. The commands available consist of the following:-

I (n)	Insert text
T (n)	Target to line (n)
U (n)	Up (n) lines
P (n)	Print (n) lines
L (text)	Locate text
L	Locate next occurrance
H	Query buffer size
E	Edit line
B	Bottom of buffer
D (n)	Down (n) lines
Z (n)	Delete (n) lines
KS	Kill source code
O	Revive source code

Most of these are fairly conventional although some are extremely useful. For example, the *'T'* (target) line command which provides a means of getting around your source code file very quickly. Similarly, the *'H'* (how big?) command which displays the buffer sizes for workspace, linker input, source, relocation stream, object output code and object output data are future indications of a package designed for hard-pressed programmers. A definite pointer in this direction was the inclusion of

the *'O'* (old) function which undoes the last *'KS'* (kill source code buffer) command — a real life-saver.

The assembler itself provides only one command which is naturally enough *'A'* for assemble! Several options are available to cover output to the screen or printer. The remaining two options are designed for program enhancements and include an optimise branches facility and toggle the linkable code generation on or off. This last feature is of particular significance where the code contains a large number of errors, usually at the initial stages. By switching out the linking facility the code can be assembled with errors being trapped on a *'stop-on-error'* approach, which allows a faster cycle of edit/assemble/re-edit to take place until the errors are finally eliminated. A full range of pseudo operators are available based on Motorola 68000 assembler conventions with some additions for specifically invoking exceptions. The assembler is said to be able to operate at a speed of circa 25,000 lines/minute on absolute or linked code. I did not have any source code to hand which approached this quantity although on assembling smaller files I could see no reason to dispute the supplier's claim.

The symbolic debugger or monitor provided symbol table access, arithmetic operation and user input in any number base in addition to the conventional monitor facilities. I found this monitor easier to learn than WACK, the 'official monitor' principally because the commands used the letters of the alphabet more explicitly to signify a function — WACK tends to use choices such as *';'* or *'['* for functions.

Enhancements

However, I felt that some enhancements could be added to the monitor. On the next release of the product. I would like to see use made of the HELP key — this could provide a screen listing all the command keys and their functions. It would have been pleasant to have on display continuously all the 68000 registers, for example in a small window in the upper corner of the screen. It can be both difficult and tedious to keep track of just what value is where during your dealings with a 18 register processor! One final requirement which is peculiar to the AMIGA concerns the special circuit registers i.e. AGNUS, DENISE etc. Some of these cannot be accessed directly without the system becoming very upset and falling over. A method to avoid this is to reduce the display frame size of the monitor, a technique which I have employed successfully with WACK — the present release of K-SEKA does not support this.

I mentioned earlier the ability to leave out linking, a useful timesaver. K-SEKA also allows linking of code modules and assembling a source file simultaneously — another excellent timesaver. All in all K-SEKA is both a useful and above all useable product. Not only does it combine flexibility with speed, it is easy to use. Programming the AMIGA at assembly language level is very definitely not a task for the faint-hearted or impatient programmer — it is far removed from the balmy days of the 6502 processors of yesteryear. Whilst hardware costs may be falling like the proverbial lead plated balloon, software development costs continue to rocket upwards. Indeed, the indications are that this trend is likely to continue for some time to come. Anything a programmer can do to reduce both the learning curve time and compilation/assembly time and thus free him/her to get on with the creative aspects of the software development cycle means greater productivity and therefore an enhancement of the profitability (financial or otherwise) of the whole exercise. K-SEKA is an essential tool to achieving this goal.

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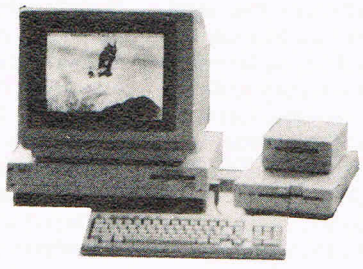

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Aegis

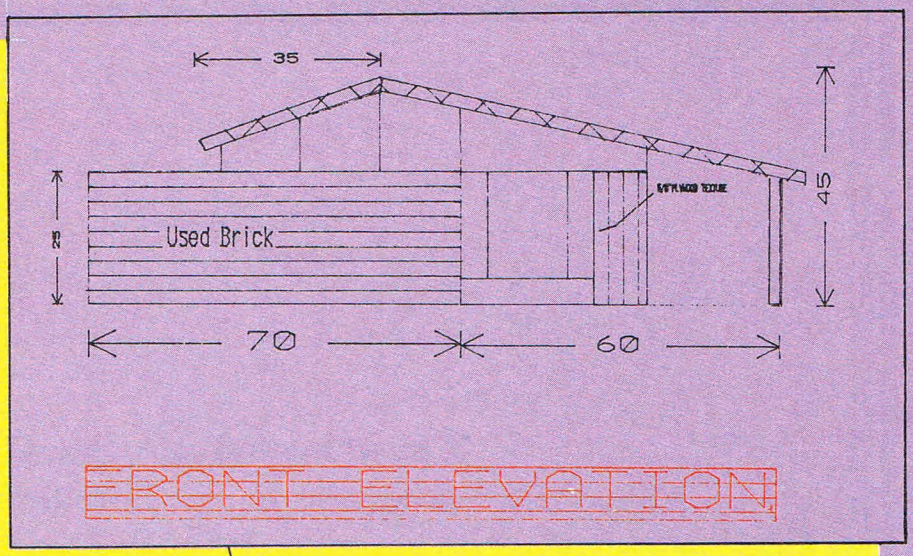
CAD in the computer version stands for *Computer-Aided Design* and a machine such as the AMIGA forms the ideal platform to give life to this concept.

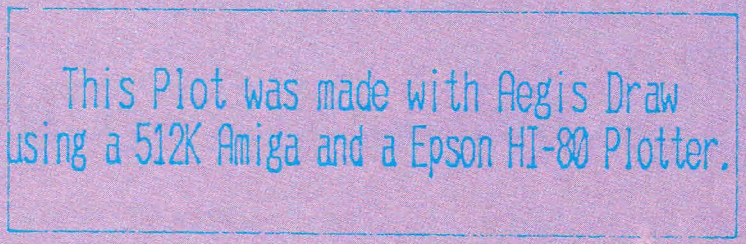
The Aegis DRAW package is supplied on a single disk together with a very extensive manual. The manual not only provides details of the software but also provides an introduction to the concepts of CAD. Whilst the text of the manual gave extensive coverage to the package it seemed rather limited in terms of the screen diagrams. I think the author lost sight of the fact that some of the techniques employed in CAD would be better served by a drawing rather than text. This is, after all a drawing package! A minor criticism since one of the strengths of Aegis DRAW lies in its teaching posibilities and many users could well be without direct supervision from a knowledgeable CAD user.

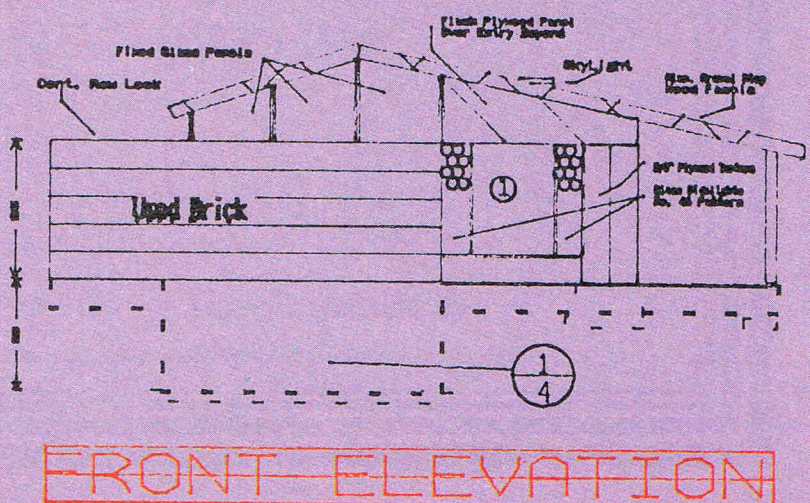
CAD allows the creation of accurately scaled drawings — in effect a database of the various elements of the drawing such as shape, dimension and relationship to other elements, etc. The screen display of the AMIGA serves as a *window* into the drawing although the drawing can have a far higher *resolution* or depth of focus than that being shown on the monitor. This means that the user can *zoom in* on a section of the drawing and make this the new screen display. There are no limits (honestly!) on the zoom facility — you can, if you wish zoom into infinity and could stop with the tiniest screen *pixel* of display dot enlarged into a full-sized screen. This may be rather difficult to swallow but if you watch this being done you will understand the concept.

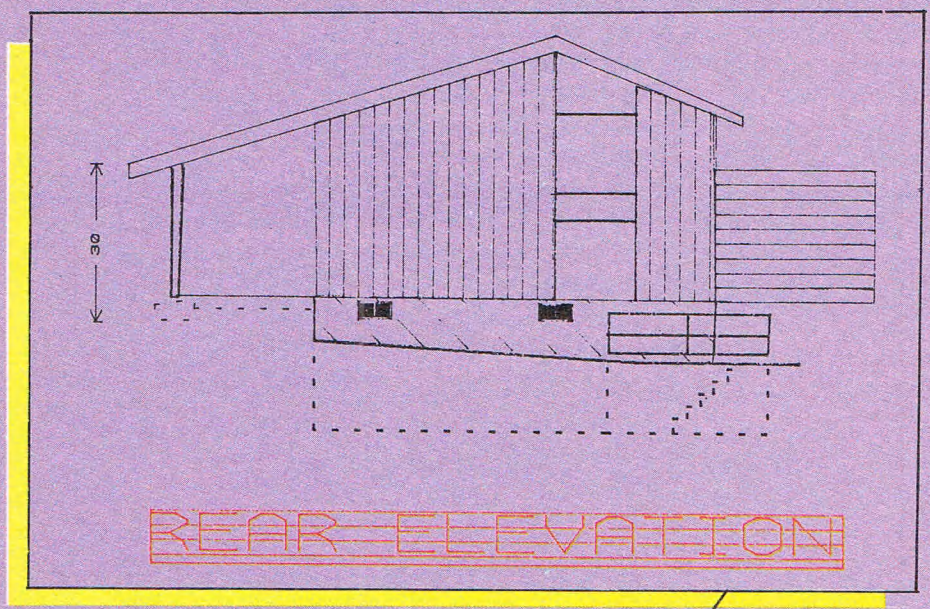
I am very pleased to report that this package makes full use of both hard disks and any additional RAM the user may have added to their system. On a standard European specification AMIGA of 512K, Aegis DRAW allows two windows simultaneously — remember we are talking of 600 by 200 resolution with 16 colours. My own AMIGA has a total of 2.5 megabytes of RAM and was able to provide a further 3 windows making 5 in total. If you feel that this would be insufficient then invoking the multi-tasking facility of the AMIGA to initiate another Aegis DRAW running provided a further 3 windows before I ran out of memory. I don't think anyone is going to raise their eyebrows in complaint at 8 screens running on 16 bit-planes each. For those users who really want to make the mini-computer crew with their DEC's and VAX's howl and squirm then switch the display into *interlace* mode and take the resolution up to 600 by 400 pixels per screen. I would defy anyone to produce this on an IBM-AT using any hardware add-on and software of their choice for a total cost of less than $8,000.

Aegis DRAW relies on using INTUTION









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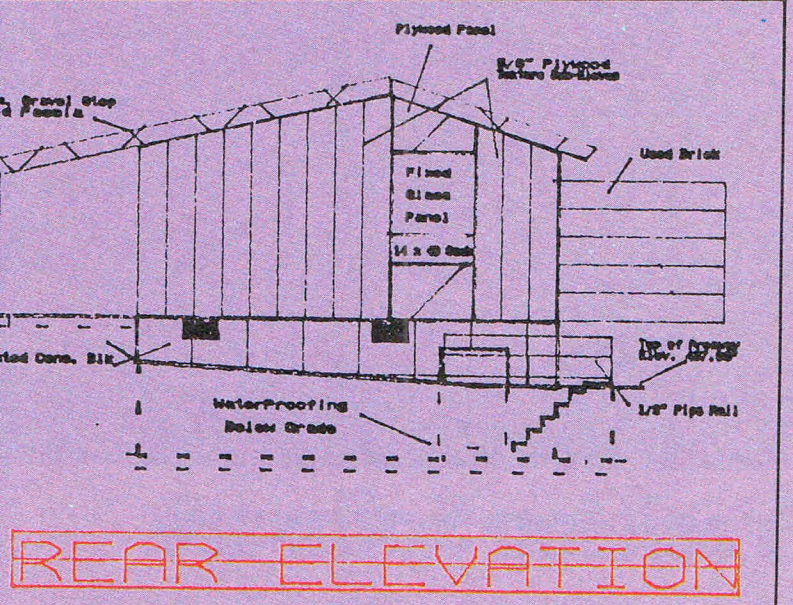

AEGIS
Development
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Santa Monica, CA 90403

as the working environment which gives the user windows, menus and requestors. A requestor is effectively a forced-choice menu — the user has to respond to it. The software is *tool* based and uses conventional terms for a function. This makes using the package extremely easy.

Ther are 7 main headings in the menu bar — **project, edit, tools, display, options, preferences** and **colours.** The options under **project** allow creation and file operations, **edit** allows changes to be made to an existing drawing. This option also contains the very useful **undo** command which will reverse the last editing operation. In the **tools** menu are found the various shapes and option to create a shape on the drawing whilst **display** controls the screen output. The Aegis DRAW uses a continuous grid and ruler on the display, both of which can be re-scaled or removed altogether — selecting the latter improves the already fat re-draw sequence considerably, a classic demonstration of the power of the dedicated graphics hardware of the AMIGA. The **options** menu gives access to the different aspects of the drawing such as line thickness and pattern, grid size and plotter scale. **Preferences** is similar in operation to **options** in that any selection made here is on a *toggle* (on/off) basis. The final menu option is **colour** and Aegis Draw allows selection from 16 colours — these can be altered by means of adjustment of the RGB components. These 16 colours are derived from a master palette of 4,096.

The output from Aegis DRAW can be directed to either dot-matrix printer or plotter and some examples of the latter mode are shown here. The plotter range supported is very extensive. A printer will only provide a print of the screen display and will not have the resolution if the user has been making use of the *zoom* facility. Thus, to obtain the full benefit of this package a plotter is essential. The file format is the standardised IFF which allows a large degree of portability between different applications on the AMIGA.

It is without exaggeration to say that Aegis DRAW is a seminal piece of AMIGA software. The most obvious markets for this product lie in architectural design, building construction activity, electronic component design, quite frankly the list is endless. In effect Aegis DRAW has made professional CAD available to everyone — yet another mainframe/minicomputer monopoly bites the dust. A demonstratioin is strongly recommended. Most viewers will walk away pleasantly astonished especially at the cost.

Price: £147.78 (plus VAT).

UK Distributor: Precision Software Ltd., Park Terrace, Worcester Park, Surrey KT4 7JZ. Tel: 01-330 7166.

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CANON PJ-1080A INKJET PRINTER

Most readers will be familiar with, or indeed probably own and operate a dot-matrix or daisywheel printer. An inkjet printer is more likely to be unknown to them in terms of their technology or price. Happily, the Canon PJ-1080A will provide some welcome relief on the latter factor since it is now very competively priced. However, can an already overcrowded market absorb this interloper? My answer is YES because inkjet printers open another dimension to users who demand quality without running to the current £2000+ levels of laser printers. I have been running the PJ-1080A for some 3 months courtesy of Precision Software on a variety of machines and have learned just what it can and can't do. Here's my report.

In printing terms there are two basic theologies — impact and non-impact. The daisywheel and dot-matrix printers rely on mechanical impact to transfer the ink from it's medium, usually a ribbon to the paper. Such a system demands a high level of mechanical parts with the consequent wear and tear that this entails which is ultimately reflected in the loss of the original manufacturing tolerances after several thousand hours of use. To circumvent this deterioration a system of maintenance is necessary which brings further problems, not least in additional and often unplanned financial costs. A non-impact printer such as an inkjet or laser does not have the equivalent level of mechanical parts (no ribbon to be moved) and they achieve their objective by transfering the ink by contact with rather than *hammering* on the surface of the paper. This ink placement process can take the form of being squirted onto the paper (inkjet) or transfer from a pre-coated roller (laser). The outcome of an impact on the surface of the paper means a disturbance among the fibres which constitute the paper. This can cause a distortion pattern which can lead to the ink *bleeding* or leaking beyond the initial site of impact with a subsequent drop in the resolution of the character.

There are a number of solutions to this which can involve higher viscosity inks, increasing the number of pins in the dot-matrix to spread the mechanical loading on the paper surface making the paper more resistant to the impact although this can lead to higher wear rates on the impacting unit itself. The current line of thinking among the dot-matrix printer manufacturers seems to favour the increased number of pins route. The daisywheel printer can produce good resolution characters although this is at the expense of operational speed and very high dependence on a mechanical infrastructure with all this entails in terms of maintenance and noise emissions.

The CANON PJ-180A produces up to seven basic colours using either paper or overhead-transparency plastic sheet. The Achilles heel of inkjet printers — the drying out of ink in the jet nozzles when the printer is not in use is overcome by a novel technology which allows ink to syphon back to a reservoir. As a secondary precaution the jets are also mechanically capped which also has the benefit of preventing foreign bodies i.e. dust particles, settling on the jets. The seven colours available from the printer are **yellow, magenta, cyan, black, red green** and **blue** — there are actually 8 colours if you include the the paper colour which is usually white. The nozzles for each colour consist of a 0.1mm glas tube with a piezo-electric transducer attached. Applying a voltage to the transducer causes a minute compression on the glass which in turn forces the ink through the nozzle orafice under sufficient pressure to hit the paper. Incidentally, the laser printer uses a form of this — the jet of ink is issued under electronstatic force rather than hydrostatic and since the ink stream is electrically charged it is attracted to the paper which carries an opposite electrical charge. Contrary to popular belief, laser printers do not burn the paper to form the image. The need for an effective capping mechanism is apparant when the size of each nozzle is only 0.065mm — which is about 15% of the size of the fullstop at the end of this line.

The printer as supplied uses the Centronics type interface and appears to be completely EPSON compatible — I say this since I used my existing EPSON printer cable without any problems. Paper handling is done through friction-feed, with the emphasis on using a roll of paper as the machine has a recessed holder for this type of paper. I must confess to avoiding paper rolls and found that standard (80 column) paper would fit provided the perforated tractor-feed edges were removed. By doing this, paper of any length would work satisfactorily and narrow paper i.e. labels and envelopes presented even less of a problem. During the course of this 3 month period the printer produced many copies of graphic output from my AMIGA which placed a severe demand on the quantity of ink required. CANON declare in the excellent User Manual that accompanied the printer that each colour is good for 3.5 million characters and based on my own experience I would feel this to be an understatement.

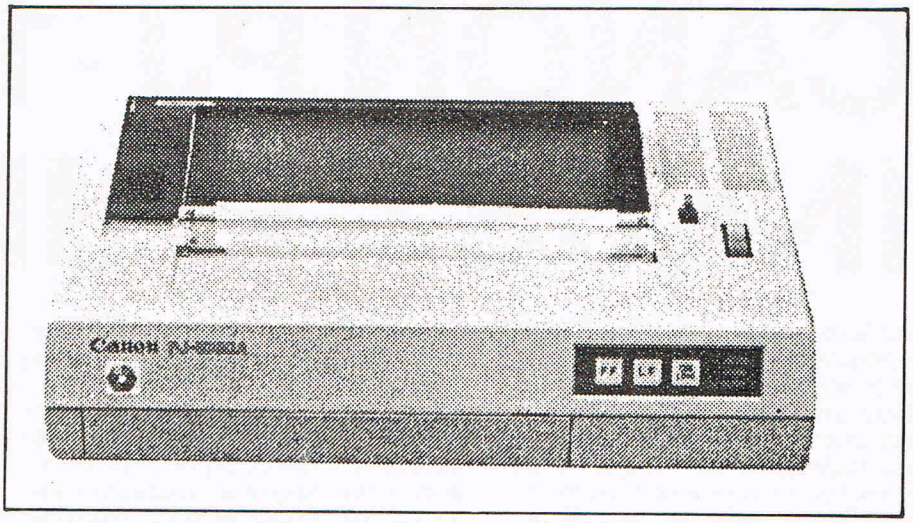
There are two basic modes of operation 2 text and graphics. Text mode provides a total of 96 characters at a claimed speed of 37 characters/second with access to 8 ASCII international character sets. These are **USA, UK, FRANCE, GERMANY, DENMARK, SWEDEN, ITALY** and **JAPAN**. These are all identical to the EPSON character set. The matrix size is 5 by 7 in standard characters and 10 by 7 in enlarged characters. The characters can be underlined, emboldened and printed in a type of *reverse video*, that is the paper being printed in a different colour from the characters themselves. There was no support for italics and the printed characters lacked true-descenders thus ruling the CANON out for serious work as a word processing printer although the true strength of the machine lay in its graphics abilities.

With a resolution of 640 by 560 dots, the CANON PJ-1080A is perfectly matched for use with the AMIGA. The line scan is bi-directional and printout taking about 2 minutes on average although this is obviously dependent on the degree of complexity of the screen image. There is a small internal buffer which provides a slight advantage in overall operational speed although the multi-tasking facility of the AMIGA made this unnecessary. The output obtained from this hardware combination was spectacular to say the least. Naturally there are limitations — where one device can provide 4.096 colour and the other 7 colours, there has to be constraints. However, it should be realised that to accurately reproduce the screen display of the AMIGA by a terminal prin-

ter would shift the cost element by a massive amount — certainly well past the cost of the AMIGA itself.

One problem that could concern potential buyers relates to the ink itself. This is handled in cartridge form, a leakproof plastic bag to be precise which is inserted into a special tray in the printer. Hypodermic needles then penetrate the cartridge and the printer obtains its supply (or fix!) of ink with complete protection for the user from getting ink everywhere. A very simple but effective idea. This was also one area that I fixed upon rapidly, since running costs tend to be ignored or forgotten by many users, and discovered that the cost of the ink cartridge is less than £20.00, although no doubt this could be improved by shopping around. Obviously it would be difficult to forecast with complete accuracy the annual running costs in terms of consumable items since this depends on usage. I mentioned earlier that I had heavily used this printer for 3 months on both my AMIGA and C128D and I could not detect any decrease in performance by the end of this period.

So what is the market for the CANON PJ-1080A? The obvious one is business graphics since the combination of AMIGA/CANON/LOGISTIX is unbeatable in this application. Other uses could be cartography, graphic design and art — the range is potentially extremely wide. EPSON compatability is important not just from the character viewpoint since most graphic software drivers also use EPSON control codes. The only other competition for the CANON comes from EPSON themselves (who else!) with their JX-80 printer and the OKIMATE Colour Printer. These will be tested in forthcoming issues of Commodore Business and AMIGA User.



For graphics and other uses, particularly at its present price the CANON PJ-1080A unquestionably provides excellent value.

Price: £345.00 (including VAT)
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The Amiga System: An Introduction — Bill Donald Precision Books £9.95.

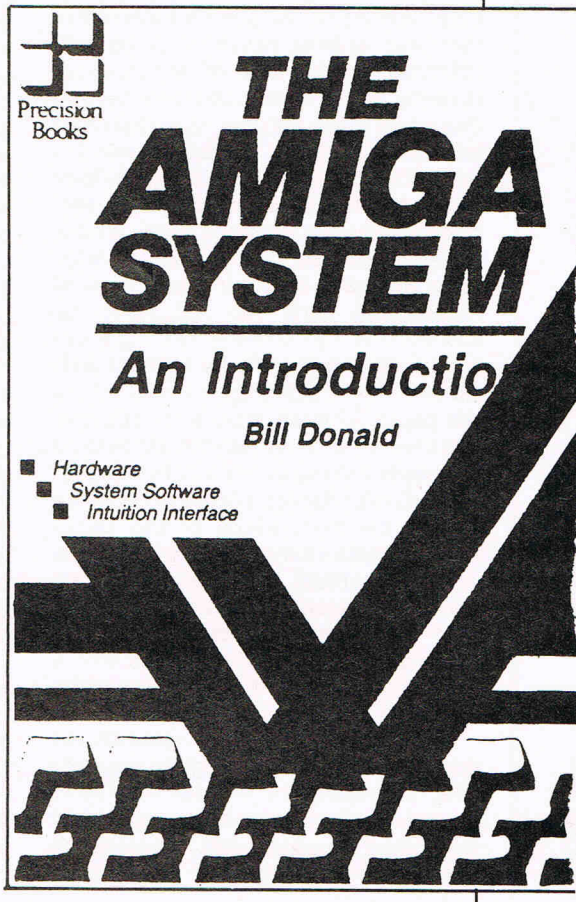
Bill Donald is acknowledged as one of the outstanding experts on the Amiga. A frequent contributor to this magazine and possessor of one of the first Amigas in private ownership outside the USA, he has followed all the developments connected with the Amiga with close attention. It was therefore no surprise when he was commissioined by Precision Software — the most important distributor of Amiga Software — to create a totally authoritative book on the Commodore computer.

THE MACHINE
Starting with the hardware, the author describes the Amiga's 68000 based CPU and the other special chips that handle graphics and animation, relating the sophisticated visual capabilities of the machine to its underlying architecture. *The Amiga System: An Introduction* also provides detailed guidance on controlling the Amiga mouse, light pen, and disk drives, as well as the serial and parallel I/O interfaces. The hardware discussion culminates in a fascinating account of the Amiga's audio facilities.

INTUITION
Intuition is the name of the Amiga's attractive mouse driven multi-windowing interface. Bill Donald shows how the elements of Intuition fit together to form a friendly and easily manipulated operating environment, and discusses the routines for programming Intuition effectively.

AmigaDOS
The Amiga's Operating System, AmigaDOS, is probably the first genuine multi-processing operating system on a microcomputer, allowing users to run several programs, or "processes" at once. *The Amiga System: An Introduction* covers the Command Line Interpreter (CLI), the filing system, special devices, and the command editor, with many examples of essential everyday housekeeping operations.

Bill Donald's book, *The Amiga System: An Introduction*, is full of useful information. It will provide anyone who already owns an Amiga, or prove to anyone considering its purchase, just what may be achieved.



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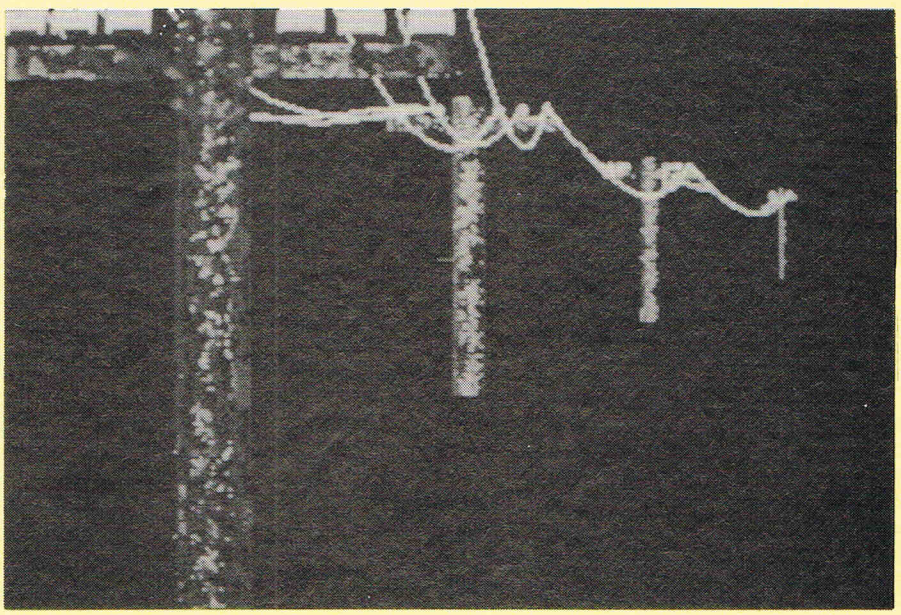
Amiga Comms



The rapid growth in the UK and USA of inter-computer communication in the form of public and private data transmission systems has been matched by an ever-growing range of communication peripherals and software. In this article I will be looking at the software available for the AMIGA in the data transmission field. I have three straightforward communication packages. These are TELECRAFT, ONLINE! and AMIGATERM — the remaining product being BBS-PC, a bulletin board system.

First the comms software — these follow a similar route in terms of the *front-end* or screen display. Each uses the WORKBENCH environment of windows and menus to display the very large number of functions available to the user. Indeed, a criticim could be leveled at each of these products for having rather too many facilities causing confusion to the novice. There is a fundamental problem here between what the user wants and what the software can give. Comms software appears to cater for two basic types of user — one will simply want to carry out specific and unchanging tasks. In the UK these tasks could well be sending telexes via TELECOM GOLD, reading the CITISERVICE pages on PRESTEL or possibily logging on to one of the large public databases located in the USA. The other type of user is a true techno-gourmet. For him (or her) sampling the intricacies of baud rates, tasting the effects of even parities or even slipping into the delights of duplex are like food and drink. With this level of patience, knowledge and determination it is no doubt possible to have your AMIGA talking to the distributor cap on a Ford Granada located on the third floor of a multi-storey car park in Wellington, New Zealand.

Comms software can be either for a specific purpose or for the user to choose the requirement. The three pieces under review here belong to the latter category. This is fine IF you know what to do. In a situation where the user does not care to become involved in the setting-up of files and communication protocols then these packages are sufficiently powerful and flexible enough to enable the retailer to achieve this quickly and efficiently for the purchaser. Once this has been done, then a simple 'crib card' containing the operating instructions would suffice.

For example, let us assume that the settings file has already been created for you. This file contains all of the communication information such as transmit and receive rates, protocols, screen colours, telephone number and password relevant to your application. This is loaded into the AMIGA from the menu selection 'LOAD SETTINGS'. Having done this the machine then prompts for a file name — obviously it pays to name these files in such a way that they bear a meaningful relationship to the individual database you wish to contact. The software automatically assigns a 'settings' suffix to these files after definement so you are kept within the settings directory, avoiding possible errors on selecting the wrong type of file. Once the settings file is in the machine, the next step is to open a buffer. At this point the uninitiated may start thinking in terms of wrestling with a component of railway rolling stock. No, the buffer is simply a designated area of memory to receive or transmit the data from. Imagine your AMIGA as a telegraphist (as seen in Wild West movies), the buffer is simply the telegraphist's notepad upon which the message is placed.

The next stage is to dial the telephone number of the database you require and listen for a continuous whistling tone indicating that the computer at the remote end is ready. The final stage in this process is to switch the modem to ONLINE, unless of course you have one of those mega-modems that does all of this for you. Data is then received or transmitted from the buffer. It probably reads a lot more complicated than it actually is. Once the foundations, the settings, have been laid, then even unskilled operators may use the AMIGA supported by sophisticated autodial modems as a effective communciations terminal.

Packages

Each of the three comms packages we used provide an extremely comprehensive range of functions for data transfer across telephone lines using a direct connect modem. The more advanced features include telephone number directories and function key definement to character string commands. This latter function is another step in the direction of saving the user time — for example key F1 could be assigned the following command string:-

922111 4444444444 4444

Amiga Comms

cont

This would allow a user in the local call area of Maidstone, Kent to access British Telecom's PRESTEL public demonstration frames. The first sequence being the telephone number, the second sequence the logon number and the final sequence serving as the password. The time saving this makes is considerable and each settings file can contain up to 10 function key command strings. Incidentally, the publication of the telephone number and codes above are quite legal!

The second element of these packages is the file transfer facility. By this I mean direct coupling of the AMIGA and another machine through an RS-232 link. The RS-232 port of the AMIGA is well documented in the User Manual and supports transmission rates of up to 19,200 baud. A baud represents one bit per second and in general terms a screen character is made up of eight bits. Thus 19,200 baud equates to 2,400 characters per second or just over one full screen of 80 columns by 25 lines (2000 characters).

The direct transfer of files is very important to users who have large volumes of data on another disk format running under different software. This is a topic on which I feel well qualified to speak since I recently transferred all of my wordprocessing files to the AMIGA using one of these packages. All of these files were under SUPERSCRIPT 128, 1571 disk format — some of them extending back to EASYSCRIPT in my C64 days. They were transmitted from my C128D running SUPERSCRIPT using a Brainboxes RS-232 interface through to the AMIGA running AMIGATERM. The transfers were not fast nor were they slow. I was limited to a baud rate of 1200 since the technique I used was to have SUPERSCRIPT configured for an RS-232 printer. Using the SUPERSCRIPT *print* command the file was then sent ostensibly to the 'printer' which was a previously opened buffer on the AMIGA. As far as the C128D was concerned it was talking to a RS-232 printer. Easy and simple really, the only drawbacks being as I mentioned early, SUPERSCRIPT will only support a baud rate of 1200.

Indeed, the C128D will only go to a maximum of 2400 baud because RS-232 is merely emulated by the operating system. The obvious answer is to use my old friend the PLUS/4 which contains a 6551 ACIA i.e. the RS-232 operation is driven by hardware. On the PLUS/4 this will support a baud rate of 19,200 although the only problem being the lack of a suitable RS-232 interface (Brainboxes — please note) to raise the voltage at the PLUS/4 User Port from TTL levels of 5 volts to 12 volts necessary for direct connection to the AMIGA. Owners of the Commodore 700 or B-series machines as they are known in the USA will have no problems at all with voltage level conversion since these also contain a 6551 ACIA and more importantly have a dedicated RS-232 port with the correct voltage levels. This would also apply to other makes of computers such as IBM and APPLE. One of the software development environments for the AMIGA is the trusty IBM-PC and registered software developers in the UK have ben issued with the LATTICE C 8086 to 68000 cross-compiler running under PC-DOS. By now, I hope that you can see that comms software has a lot going for it beyond that of simply looking at databases and bulletin boards. Given either of these three packages the AMIGA is unlikely to represent a stumbling block to attaining your goal in this direction.

BBS-PC

This takes me nicely into the final piece of software called BBS-PC which is a bulletin board package. Bulletin boards are similar in concept to amateur radio. Someone decides to start broadcasting local news or information and anyone can listen in. Obviously both parties require the necessary equipment to do this — in radio terms a transmitter and a receiver. Transferring this concept to personal computers, the equipment necessary apart from a computer at either end of the chain is the software and telephonic link. A modem is a device which allows a casting locomputer to communicate using a telephone line. Generally the link is made over public telephone lines (PSTN) although private networks may be used for security reasons.

Public bulletin boards vary from the mundane and trivial to amusing and informative. By and large, they are very computer orientated and run by enthusiasts — those which are run as commercial entities also tend to be biased toward computers/electronics. BBS-PC allows you to create your own bulletin board. I must admit that up until reviewing this package my experience had been entirely that of a user of bulletin boards. It was therefore something of a surprise to realise just how much is involved behind the scenes. The setting up of the various files necessary to support a bulletin board is taken care of by the package. I found that the major problem was one of creation and selection of actually what to put up on display. It would be advisable to plan very carefully the style and layout of your board before anything else. One facet of BBS-PC I found invaluable in this pursuit of content and style was the ability to enter the board through the 'back door' and view what the users themselves would actually see on the bulletin board.

BBS-PC also allows your AMIGA to function as a terminal similar to the previous three packages, although with fewer functions. The manual supplied is very good and covers the software extensively in the course of about 200 pages. A black mark for having no index. However, when chapters such as 'Principles of operating a BBS' or an appendix containing detils of interfacing a variety of different makes of modem is included, the authors can be forgiven. The manual itself is a mine of information obviously culled from many years of practical experience of USA bulletin board practices.

I have no qualms in recommending this package even if it has been translated for the AMIGA from the realm of MS-DOS machines. It is robust and has been well and truly put through the mill. On reflection it would probably be an astute move to purchase BBS-PC rather than the other packages. This would then alllow you to move into bulletin boards at some future date whilst fulfilling the terminal function albeit with fewer facilities then TELECRAFT, ONLINE! or AMIGATERM. Alternatively, if you are a real comms nut then only one of these three need suffice. Once more a demonstration in knowledgeable hands would be called for.